

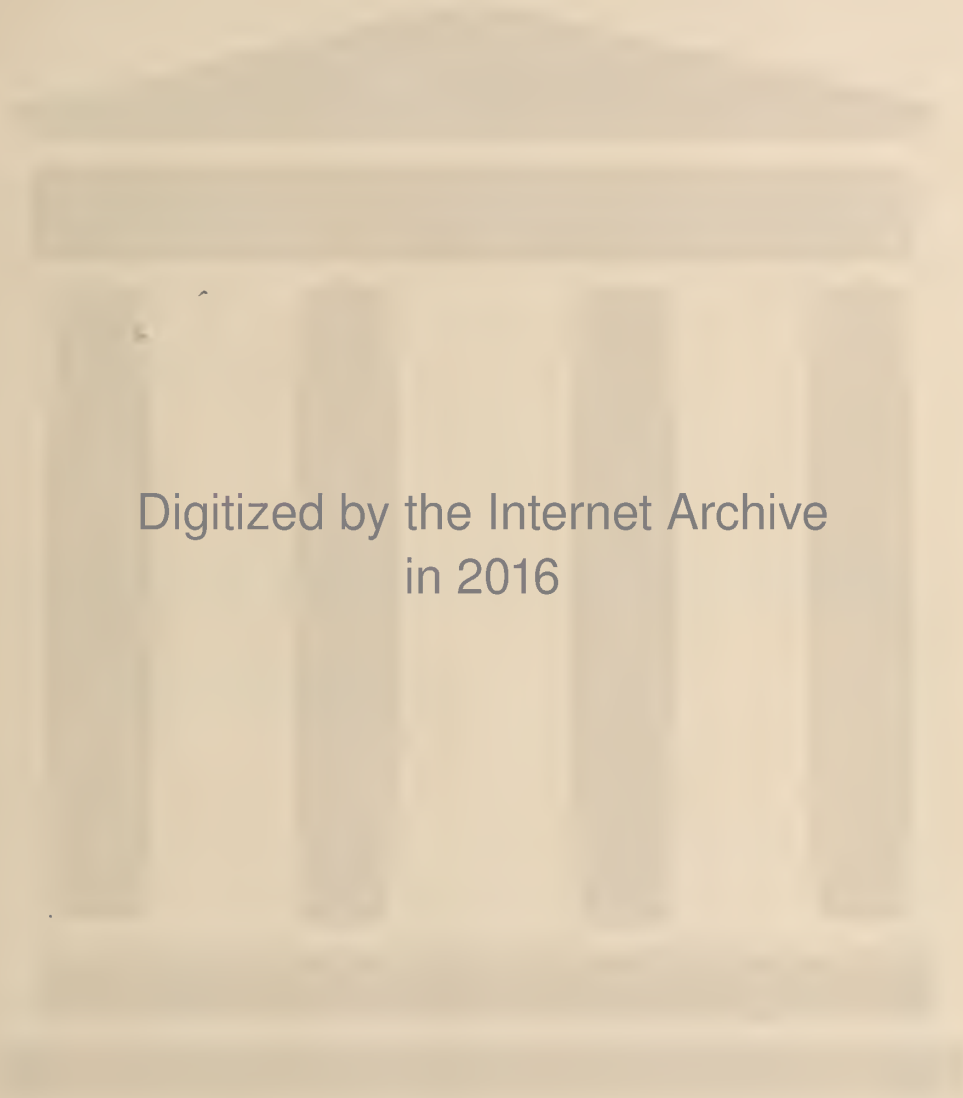
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Vermont Medical Monthly.

VOL. XIII.

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NUMBER 1.

ORIGINAL ARTICLES.

ARTERIO-SCLEROSIS.*

By H. D. Arnold, M. D., Professor of Clinical Medicine, Tufts College Medical School, Boston, Mass.

It should be recognized at the outset that an exact definition of the term "arterio-sclerosis" can not be given, on account of our imperfect knowledge of the subject at the present time. The central idea is, of course, a thickening or "hardening" of the arteries—a condition that is well-marked only in advanced stages of the disease. The clinician, however, demands that the disease be recognized in its earlier stages when treatment may be of more avail, while the pathologist turns to the earlier stages for an explanation of the nature of the process. But our definition must not only be elastic enough to include the various stages of the changes in the arteries, it should also include the manifold manifestations in the various organs that are affected by the disease secondarily. The complexity of the disease in its various manifestations is, then, the first obstacle to an exact definition.

When we turn to the general nature of the disease process, or to its underlying cause, we find that our knowledge is not exact enough to furnish a satisfactory definition. We look for help from the pathologists, but find that they are not in entire agreement among themselves as to what anatomical changes are characteristic, as to whether the disease is of an inflammatory or a degenerative type, or as to whether the lesions are manifestations of a general or a local disease. On the subject of its etiology they are in many cases as much at sea as the rest of us.

There are, of course, many cases that all agree are typical. Especially is this true of the senile form of the disease. When the clinician finds tortuous and thickened brachial, radial, and temporal arteries,—perhaps with evidence of more or less calcareous change,

—enlargement of the area of dulness over the aorta, increased arterial tension, accentuation of the aortic second sound and an enlarged cardiac area; and when the pathologist finds the well-recognized anatomical lesions of the blood vessels and heart; there can be no doubt but that we are dealing with a typical case of arterio-sclerosis.

There may or may not be clinical or pathological evidence of renal disease, and when it does exist it is often doubtful whether the renal affection was the cause or the effect of the arterial disease. In some cases it seems probable that both affections are more or less independent manifestations resulting from imperfect metabolism or some other common etiological factor.

Our typical picture of the disease is further confused by finding at times the most advanced stages of calcareous degeneration with a heart that is actually atrophied instead of being hypertrophied.

The pathologist will include under the early manifestations changes in the arterial wall that it is impossible for the clinician to recognize. On the other hand the clinician finds cases with alteration in the elasticity of the arterial walls, increase in blood pressure, and resulting functional disturbances which lead him to class these cases in the same group as acknowledged cases of arterio-sclerosis; yet the pathologist fails to find anatomical changes that warrant him in putting the cases with those that he recognizes as arterio-sclerosis.

Much confusion has resulted from our inability to give the term arterio-sclerosis an exact definition. It means one thing to one person and a different thing to another. The pathologist tries to base the classification on the anatomical changes, but the clinician would include also those functional disturbances that sometimes precede any recognizable anatomical changes in the arteries.

This is the stage where most can be done to relieve the symptoms and to arrest the progress of the disease, and we shall fail to grasp the real problems of helping these patients if we follow the pathological view and consider

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only those stages where recognizable anatomical changes have occurred.

The clinician is at a disadvantage because his investigation, as far as the arterial system is concerned, is limited to a small part of it—to a few of the superficial blood vessels. The radial, brachial, and temporal arteries are the important arteries that can be palpated. Dilatation of the ascending arch of the aorta may be determined by percussion, and arterio-sclerotic changes in the aortic valves can often be inferred from the changes revealed by auscultation. Arterio-sclerosis of the cerebral vessels may be surmised from functional disturbances conditioned upon a deficient blood supply to the brain. But it is a known fact that arterio-sclerosis does not affect all parts of the arterial system alike, and the aorta beyond the ascending arch and the splanchnic vessels—both of which are common and important sites for the disease—are essentially beyond clinical investigation. Arterio-sclerosis of serious extent may exist at these places while the superficial arteries remain in a normal condition. The splanchnic arteries play such an important role in regulating the blood pressure and consequently the work of the heart that it is claimed by some that in arterio-sclerosis a high blood pressure and hypertrophy of the heart are found only when these arteries are affected. But we must not infer that high tension and heart hypertrophy necessarily mean that arterio-sclerosis of the splanchnic arteries exists, for both conditions might arise from an interstitial nephritis or from the action of some deleterious material in the circulation before changes in the arterial walls occur in any part of the vascular system.

This discussion of the clinical side of arterio-sclerosis makes it clear that one of the most important problems is that of the blood pressure, while the changes we can detect in the arterial walls are a measure of the extent to which the disease has progressed rather than a basis for diagnosis and treatment.

We must, therefore, understand the conditions that underlie a high blood pressure if we are to treat our patients intelligently. The limits of this paper will permit only a brief discussion of these problems. First, we must remember that the volume of the blood is equal to but a small part of the capacity of the vascular system when the blood vessels are relaxed. The fact that the vascular system is kept full of blood shows that normally the blood vessels

are held by the vaso-motor system in a state of partial contraction, thus accommodating the volume of the vascular system to that of the blood. Were this not true the blood might accumulate in part of the vascular system and the circulation would fail because the blood did not come back to the heart. This is what actually happens in vaso-motor paralysis, as has been demonstrated experimentally by inducing vaso-motor paralysis by surgical shock or by the action of toxins. The blood under these conditions accumulates chiefly in the great abdominal veins of the splanchnic system and death ensues from stoppage of the circulation. If abdominal massage is employed to force the blood from these veins back to the heart, the heart still has the strength to propel it—showing that death in shock is not due to cardiac failure, as we formerly supposed—but due to vaso-motor paralysis, and the consequent accumulation of the blood in a part of the vascular system only. Vaso-motor tone is, then, as essential a factor for the maintenance of the circulation as is the pumping power of the heart—a fact that is often lost sight of by physicians.

The four essential factors that determine the amount of blood pressure are the volume of the blood, the cardiac energy, the vaso-motor contraction, and the elasticity of the vessel walls. Ordinarily we may disregard the factor of the volume of the blood, because the vaso-motor system accommodates itself to the changes in its volume. Assuming for the moment that the elasticity of the vessel walls is normal, we have in it a constant factor, and changes in the blood pressure will be determined by the amount of cardiac energy and the amount of vaso-motor constriction that are brought into play. Under normal conditions a normal amount of vaso-constriction calls upon the heart for a normal amount of work, and there results a normal blood pressure which is sufficient to maintain the circulation of the blood through the whole vascular system. An increase of blood pressure means an increase of the work of the heart, for it must force the blood against greater resistance and through narrower channels. This means development or hypertrophy of the heart muscle, if it is well nourished,—or dilatation, if it is weak and not well nourished.

The relations of cardiac force and vaso-motor constriction as affecting the blood pressure may be stated in another way. The height

to which the blood pressure *may* rise is dependent on the limits of cardiac power, while the height to which it *does* rise (within this limit) is determined by the amount of vaso-motor contraction.

It is essential that we study this problem of high tension in the consideration of arterio-sclerosis, for high blood tension is not only one of the results of arterio-sclerosis, but it has long been supposed to be one of the causes of the affection. And now certain recent investigations on animals, both abroad and in this country, seem to give the support of experimental evidence to confirm this view. Thus we find experimental pathology coming to the support of the view long held by clinicians that continued high blood pressure may be a cause of arterio-sclerosis.

An important part of the preventive treatment of arterio-sclerosis, therefore, will consist in the early detection of high blood pressure and the adoption of measures for its relief. The most effective measures of relief will consist in the removal of the causes of the high blood tension. Important among these causes are toxic influences, nervous influence, and perhaps prolonged excessive muscular work. We still have much to learn about the way in which these causes act, but we have at least a rudimentary knowledge of the subject that is useful.

Of the causes mentioned above, prolonged excessive muscular work is the one about which we have the least reliable information, for the effect of exercise on blood pressure needs further investigation. It is probable, however, that laborious occupations with repeated violent muscular strains tend to produce arterio-sclerosis.

Under the head of nervous influence I should include the reflex stimulation of the vaso-motor system from sources of irritation in any organs of the body, and also the stimulus of mental origin, such as anxiety and worry. Of the reflex stimulation we know little except that it may exist, and any known sources of such irritation should be removed if possible. The mental element is recognized as a cause of high blood pressure, especially in the intense application, the responsibilities, and worries of the modern strenuous business life. This is a very important matter, as it carries off prematurely so many of our most valuable citizens.

But by far the commonest causes of increased blood pressure may be classed under the gen-

eral head of toxic influences. Here our problem is a bit more complicated, for we must consider not only the effect of these toxic substances on the vaso-motor system, but also their direct injurious action upon the tissue cells of the arterial walls.

Of poisons introduced from outside, lead, alcohol, and probably tobacco are generally accepted as causes of arterio-sclerosis. Poisons probably due to imperfect metabolism are the cause in gout, diabetes, and in the excessive ingestion of food. Poisons due to imperfect elimination are the cause in nephritis. And finally we have the poisons due to infectious diseases to consider. Oftentimes these last act more upon the tissues of the arteries themselves in producing arterio-sclerosis than they do indirectly through the vaso-motor system and high blood pressure.

Syphilis—a chronic infection—has long been accepted as a cause of arterial degeneration. But of late years we have come to recognize the deleterious effect of the more acute infectious diseases on the blood vessels as well as upon the heart muscle. In this connection the work of Prof. W. S. Thayer of Johns Hopkins on the effect of typhoid fever on the heart and blood vessels deserves special mention. I believe that we should pay more attention than we do to the consideration of the circulatory system during convalescence from the acute infectious diseases. I am sure that unnecessary damage is frequently done to both heart and blood vessels by allowing a return to full activity before the effect of the toxins on the circulatory system has been fully recovered from.

A review of these toxic causes brings out another point to be borne in mind,—namely, that their action is not restricted to the blood vessels, but may extend to other organs of the body. In fact, if they are active enough to affect the blood vessels noticeably, they will usually affect other organs as well,—especially the heart and kidneys. Hence it is rare to find a case that is purely one of arterio-sclerosis. Hence the frequent association of cardiac and renal affections with arterio-sclerosis. Also, when we consider the effects of arterio-sclerosis upon the heart and kidneys, we must remember that part of the disturbance may have been due directly to the same cause that produced the arterio-sclerosis, and that arterio-sclerosis itself is not necessarily responsible for all the trouble.

One factor from our list deserves a little

more consideration, namely, the ingestion of unnecessarily large amounts of food. I believe that this is an important factor in the production of arterio-sclerosis more frequently than is generally supposed. In this country we are, as a rule, too hearty eaters. In addition, the proportion of meat in our diet is too great, and it is the excess of albuminoid material that does most damage. The albuminoid molecule is harder to break up than are the molecules of other classes of food, and the metabolism of the body finds it difficult to reduce the albuminoid material to the simple chemical forms that are unirritating either to the tissues as they circulate in the blood or to the kidneys as they are eliminated. Moreover, the substances resulting from imperfect metabolic changes of albuminoids are especially irritating and are active in producing high blood tension. These substances are also injurious to the kidneys and may cause interstitial nephritis. We occasionally see a case where the excessive use of albuminoid food is apparently the sole cause of interstitial nephritis and arterio-sclerosis, but these cases are rare. On the other hand, there must be a very large proportion of the cases where this is an important factor working in conjunction with other causes. For this reason we must not neglect, when treating high blood pressure from any cause, to regulate the diet and to reduce the amount of albuminoid food to a minimum.

We have considered high blood pressure as an antecedent of arterio-sclerosis and as probably one of the causes that may produce that disease. The earlier we can detect it, the more hopeful is the outlook for success in treatment. We must first determine the cause of the high tension and then endeavor to remove the cause as far as possible. Drugs or other measures that temporarily reduce the blood pressure by acting as vasodilators are to be avoided at this stage of the disease. We should concentrate our efforts on the underlying cause, and not be satisfied with symptomatic treatment.

Next we must consider high blood pressure as resulting from arterio-sclerosis and not causing it. Here comes into play the fourth factor which we mentioned as affecting the blood pressure—namely, the elasticity of the vessel walls. As the word elasticity has been used in several contradictory senses in this connection, it is necessary to define just what we are to understand by the term. By elasticity I mean that property of the vessel-wall by which it easily

stretches under the influence of pressure from within and returns to its original calibre as soon as the pressure has been removed. Part of this elasticity resides in the muscular fibres of the vessel-walls, which are also subject to vaso-motor influences, but part of it also lies in the elastic tissue, which is not in any way under the control of the nervous system. Moreover, it should be noted that the elastic tissue very largely predominates in the aorta and its chief branches, while the muscular elements predominate over the elastic in the smaller arteries and arterioles. The aorta and bigger blood vessels form, as it were, an elastic reservoir into which the left ventricle forces a certain volume of blood with each contraction. Then comes the recoil of these elastic walls, which forces the blood along through the arteries.

Arterio-sclerosis involves loss of elasticity of the walls of the arteries, because there is loss of the original cells of the tissues and a replacement by structures that are less elastic. This loss of elasticity means that the wall will not distend as easily, and therefore it will require more work on the part of the heart to force out a given amount of blood. Secondly, the vessel-wall will not contract as fully after distension and hence the driving power through the arterioles and capillaries is lessened. But it is necessary that this driving force should be kept up, in order to maintain the continuity of the circulation back to the heart. In order to secure this, the pressure in the arterioles must be raised and this is accomplished by the vaso-constriction of the smaller arteries and arterioles—a compensatory action so to speak, to make up for loss of elasticity in the non-muscular part of the vascular system. The result of this vaso-constriction and heightened blood pressure is to increase the work of the heart, and this leads to cardiac hypertrophy. This in turn increases the blood pressure, and this reacts to increase the arterio-sclerosis. Thus we have established a vicious circle.

We must now consider the question of estimating the blood pressure. We have two methods to consider. One is the old-fashioned one of palpating the radial pulse; the other is the use of an instrument that will register the amount of pressure. This instrument, a modification of the manometers used in the physical laboratories, is called the sphygmomanometer. There are several types of these instruments, but the most practical for clinical use is the

Riva-Rocci type. This instrument has a band or armlet which can be inflated and is placed about the upper arm. It is then inflated until the pressure obliterates the pulse in the brachial artery. This point is determined by palpating the radial artery and noting when the pulsation ceases. The amount of pressure within the armlet is registered by a manometer in millimeters of mercury. It represents the amount of pressure that will just overcome the pressure of blood within the artery and it is therefore a measure of the blood pressure. While this is not an absolutely accurate record of the pressure within the artery, it is sufficiently accurate for practical purposes and it is the most accurate measurement available in clinical work. It offers a means of making an exact record, of comparing the condition in the same patient at different times, or of comparing the conditions in different patients. There are forms of the apparatus that can be carried about conveniently. It is practicable to use it in clinical work. It gives greater accuracy to our clinical observations and makes the observation to that extent more scientific.

The estimation of the blood pressure by palpating the radial pulse is less accurate, but is more convenient. By training the sense of touch, one can learn to estimate the amount of blood pressure by palpation with sufficient accuracy for all practical purposes in a very large majority of cases. Our method is essentially the same as in the use of an instrument. We compress the radial artery with the finger tips until pulsation is stopped and this measures the blood pressure. We estimate the amount of pressure exerted by comparing it with the amount used in a normal case. It is essential to use three finger-tips for this purpose, using the middle one to determine when the pulse ceases to pass beneath the fingers. The two outer fingers are assailed by pulsations on their outer edge even when the current of blood beneath them is stopped, and this confuses the sensation from these fingers with reference to pulsation directly beneath their tips.

I grant that the method of measurement by palpation is less accurate than that by a suitable instrument. I grant that some cases of heightened blood pressure will escape discovery by this method that might be recognized by the sphygmomanometer. Nevertheless, I believe that if we educate our sense of touch and *always* estimate the amount of blood pressure whenever we take the pulse we shall allow

fewer cases to escape than if we depend solely upon the number of times we would investigate the pressure by our instrument. Palpation will also give us valuable information that our instrument does not. It will give an idea of the amount of pressure all through the beat and in the interval between the beats. The character of the rise and fall of the pulse wave often tells much about the condition of the heart. We can estimate, at least roughly, the amount of the cardiac force and of vaso-motor resistance. We learn much of the condition of the arterial wall. And we get the volume, rate, and regularity of the pulse. All these things we need to note. So it should not be a question whether we should use the method of palpation *or* the instrumental method. We should always use palpation and then use our instrument in addition in all cases of doubt or in cases where accuracy or an exact record are of value.

In this connection I wish to add a word of caution against laying too great stress on the exact amount of the blood pressure as recorded in figures. In our zeal for accuracy we are too apt to think we have something of importance in itself because it is accurately measured. We have at best only one factor in a complex problem. Important as high blood pressure is as a factor in arterio-sclerosis, it is not in itself a measure of the amount of arterio-sclerosis present, nor of the amount of damage that has been done. The really important thing to estimate is the relation between the degree of blood pressure and the capacity of the heart for work. As long as the heart muscle can readily supply the extra work necessitated by increased blood pressure, there will be no cardiac symptoms. But these symptoms will arise as soon as the muscle begins to weaken under this extra burden. This period will, of course, come all the quicker if arterio-sclerosis has affected the coronary arteries and caused poorer nutrition of the heart muscle.

With the weakening of the heart muscle we not only get the usual symptoms of an incompetent heart, but the blood pressure is affected. We have already seen that the cardiac power is one of the factors determining the height of the blood pressure. A weaker heart can not maintain as high a blood pressure as a strong heart. Many hearts which show a very high blood pressure while the hypertrophied cardiac muscle is well nourished and strong, will later show a normal pressure or even an abnormally low pressure as the heart weakens. This sec-

ondary low pressure, as it is sometimes called in distinction from low pressure due to primary cardiac weakness, represents a more advanced and a more serious stage of arterio-sclerosis than does the high pressure stage. The seriousness of the condition arises from the fact that this weak heart is overburdened by the resistance against which it works, even though the pressure is much less than what another heart can handle with ease. This heart is more in need of relief by lessening the obstruction to the flow of blood than is the stronger heart that easily handles high pressure. Unless the pressure in these secondary low pressure cases is so low as to threaten the maintenance of the circulation, it should be further lowered (by vaso-dilator drugs or other measures) as one of our important measures to relieve the heart. It is surprising how much better some of these cases do if with the cardiac stimulation we combine a vaso-dilator such as nitroglycerin,—even though the blood pressure is absolutely low.

It is not enough, then, to know the absolute height of the blood pressure, we must estimate the capacity of the heart for work and understand its relation to the amount of work the blood pressure calls for.

In this connection we must take into account the size of the heart, the character and force of its impulse, the intensity and quality of the cardiac sounds, the rate of the heart action, and alterations in its rhythm. Symptoms and other evidence of broken compensation of course indicate that the heart is unequal to the task set for it.

We have now considered the etiological factors of high blood pressure, and high blood pressure both as a cause and a result of arterio-sclerosis, and we have traced the effect of these combined factors on the heart. We have seen that some of the toxic causes, especially the infectious, act directly upon the tissues of the vessel walls to help in the production of arterio-sclerosis. There are two other factors that should not be overlooked, heredity and age.

It is generally recognized that in some families there is an hereditary tendency to arterial break-down. This is independent of the influence of hereditary syphilis, which may also affect the arteries. On the other hand we also find families in which the arteries preserve their youthful elasticity to an advanced age. It is also generally accepted that old age is commonly a factor in the production of arterio-sclerosis,

although it is equally true that many of the manifestations of age are due to the poor nutrition of the tissues, on account of a poorer blood supply in arterio-sclerosis.

The form of arterio-sclerosis in old age is quite characteristic and the pathologists are apt to put these cases in a separate class—the senile form. We usually find in these cases the deposition of lime salts in the arterial wall, and this calcareous degeneration distinguishes the senile form from other forms of arterio-sclerosis. The distinction of the nodular and the diffuse forms of arterio-sclerosis needs no description, and the form characterized by tortuous arteries is easily recognized. There is a stage of arterio-sclerosis, however, which is easily overlooked. It is the stage where the arterial wall has lost some of its elasticity but yet has not become thickened. Such an artery usually has a larger calibre than normal. Only a delicate sense of touch can distinguish the lack of elasticity in the expanding arterial wall which distinguishes this condition from the full, low-tension pulse with normal arteries.

The involvement of other organs than the vascular system deserves a little more consideration. Arterio-sclerosis affects them chiefly by the impairment of nutrition that results from a poorer blood supply. Changes in the structure of these organs or in their functions may result. We should not forget in this connection that where arterio-sclerosis arises from toxic causes part of the damage may have been due to the direct action of these causes upon the other organs as well as upon the vascular system.

The most important organs to consider in connection with the arterial disease are the heart, the kidneys, and the central nervous system. The effect of arterio-sclerosis on the work of the heart has been fully considered. The effect on the nutrition of the heart muscle is of equal importance. The part played by arterio-sclerosis of the coronary arteries in angina pectoris is well recognized. To a lesser degree the profession appreciates that the same cause acts to impair the nutrition of the heart muscle. But it is not as clearly recognized that where the coronary arteries and their main branches are not enough affected to materially affect the nutrition of the heart, careful observation will oftentimes show that the same process is causing the cardiac break-down, only it is working on the smaller ramifications of the coronary arteries. Much of our so-called myo-

carditis is nothing but degeneration of the heart muscle from poor nutrition caused by arterial degeneration of the minute twigs of the coronary arteries.

The association of kidney disease with arterio-sclerosis is common, but the relations are somewhat complex. Chronic nephritis of any type is usually associated with high blood pressure. The resulting continued high blood pressure is an active cause in the production of arterio-sclerosis.

When the kidneys begin to fail in completely eliminating the waste material brought to them, we get retention of this material in the circulation and it acts as one of the toxic causes of arterio-sclerosis. Again, as we have already seen, both the arterial and renal diseases may be more or less independent results of some common toxic cause. Furthermore the functions of the kidneys are much affected by changes in blood pressure and the rate of flow of blood through them, and they also appear to be easily affected by the nutritional changes resulting from arterio-sclerosis. Thus it is clear that the kidneys may be easily affected as a direct result of arterio-sclerosis. But, whether or not we can trace the exact relations of the two affections, the association of chronic nephritis (especially interstitial nephritis) with arterio-sclerosis is very common and is well recognized. In fact we rarely have arterial disease, myocardial disease, or chronic renal disease in a moderately advanced stage without the involvement of all three of these organs, and each, as it becomes involved, makes matters worse by reacting to the detriment of the organs already affected. The resulting state of disease is commonly designated as a cardio-renal affection.

The effect of arterio-sclerosis upon the central nervous system is very important. The cells of the nervous system are especially susceptible to toxic influences, and are also very dependent on a proper amount of nutrition. It is clear that these tissues will be among the first to be affected as a result of arterio-sclerosis, and also that they will suffer directly when toxic material is the cause of arterio-sclerosis. The manifestations through the nervous system will be of the greatest variety according to the part affected, and they may be functional or may result in organic change in any part of the nervous system. In addition we have to consider the results of thrombosis or of rupture of the arterio-sclerotic arteries, and we

must remember that for some reason the arteries at the base of the brain are very commonly subject to arterio-sclerotic change.

The consideration of the treatment of arterio-sclerosis must be more or less unsatisfactory in a short paper. We can consider only the general principles, whereas success in treatment depends upon the skill with which these general principles are adapted to the endless variety of conditions presented by the individual cases.

Among the first things to recognize is the fact that we can produce practically no effect on the tissue changes that have actually taken place. Hence the importance of recognizing at the earliest possible moment those conditions whose continuance would lead to the development of arterio-sclerosis. This is the time for prophylactic treatment by removing the causes of the disease.

The commonest manifestation at this stage is high blood tension. In fact the treatment of the earliest stages of arterio-sclerosis is essentially the treatment of high blood pressure.

We considered the causes of this condition at some length. We must ascertain which of these causes are active by careful investigation, and remove them as far as possible. Only when it is impossible to remove the cause should we be satisfied with symptomatic treatment, as by vaso-dilator drugs.

Even when the treatment of high blood pressure by drugs becomes necessary, we should not abandon our efforts along other lines. We should still insist on good hygiene, fresh air, and the proper regulation of exercise. We should limit the diet to easily digested food and in quantity to the actual needs of the system, and we should especially restrict the amount of albuminoid food. Free elimination is necessary. Sufficient sleep, mental quietude, the avoidance of excitement, anxiety and worry are all to be sought for. Hydrotherapy is useful, especially with relatively warm baths and stimulation of the peripheral circulation by friction or by carbonic dioxide gas. Each bath lowers the blood pressure for only a short time, yet the total effect of continuing this line of treatment is often very beneficial.

The drug treatment consists essentially in using drugs that have a vaso-dilator action. The drug chosen will depend upon the amount of tension we must overcome, the speed with which it must be accomplished, and the length of time over which we must continue the ac-

tion. The quickest acting, but most transient, is nitrite of amyl by inhalation. It is chiefly useful in paroxysmal attacks of tension such as accompany some forms of angina pectoris.

Our next most efficient vaso-dilator is nitroglycerin. It should be used when our weaker vaso-dilators will not accomplish the desired result. It is an exceedingly useful drug, very commonly employed, yet used with about as little thought by the profession as any drug with which I am familiar. It is frequently used as if it were a heart stimulant, whereas its action is principally if not entirely that of a vaso-dilator. It is true that it is oftentimes of the greatest benefit to a weak heart, but it is because it lessens the resistance the heart has to overcome, not because it stimulates the heart itself to greater work. The common error of inferring that because nitro-glycerin often benefits the heart it is a cardiac stimulant would not be made if the profession gave the proper consideration to the blood pressure as a factor in the work of the heart. The physician who carefully regulates the amount of muscular exertion his patient makes, because of its effect on the work of the heart, will frequently overlook an amount of blood pressure that increases that work much more. Sometimes he unwittingly corrects this oversight by giving nitroglycerin on the supposition that it is a heart stimulant, but his stumbling on the right remedy does not make the procedure any more intelligent.

The next common error in the use of nitroglycerin is made by physicians who remember that it is a vaso-dilator but who apparently think the name is swallowed with the drug, and that dilatation of the arterioles must necessarily follow, irrespective of the dose or the frequency with which it is given. Such physicians expect a continuous effect on the blood pressure by giving 1-100 gr. or less from once to three times a day—and even at that are satisfied to use some old tablets that may have become inert. The sphygmomanometer shows that if nitroglycerin reduces the blood pressure the former pressure returns in about half an hour. Clinically the benefit lasts longer than that, but the action of the drug is decidedly a transient one. If it is really essential it should be given more frequently and often in larger doses than is customary. The amount and frequency of the dose must be determined by intelligent observation of each case.

Nitroglycerin is often wisely added to the treatment of heart affections when digitalis or other heart stimulants are given. These drugs, especially digitalis, not only stimulates the heart muscle to better contraction, but they act on the muscle fibres of the arteries and cause vaso-constriction. When this becomes established we need nitroglycerin in some cases to offset this action on the arterioles. But the best results are not obtained in this respect when nitroglycerin is combined in the same dose with the heart stimulant—whether in form of tablet or mixture. In that case the quick-acting nitroglycerin gets all through its vaso-dilator action before the slow-acting digitalis gets to work.

It is evident that nitroglycerin is not an ideal drug when we need a continuous control of the blood pressure in arterio-sclerosis. For slow, more continued effects we usually turn to the iodide of potash or the nitrite of soda. Neither is powerful enough to master a high blood pressure, and both are rather irritating to the stomach. They are, however, continuous enough in action to be given only three times a day. Small doses of the iodide, not over five or ten grains, are as effective as larger doses. Sodium nitrite is usually effective in two or three grain doses. If these doses do not suffice it is usually better to give nitroglycerin in addition rather than to increase the dose. A number of newer drugs have appeared whose use in arterio-sclerosis has been advocated. I have not found any of them superior to the older and more familiar remedies already named.

We may summarize by saying that success in treatment (as far as that is possible) depends chiefly on a thorough understanding of the problems presented by each individual case. Changes that have already taken place in the tissues cannot be removed. Our most gratifying achievements will come when we recognize the disease in its earliest manifestations, or when we can detect the existence of the conditions which predispose to this disease. Success then will be in proportion as it is possible to use non-medicinal and prophylactic measures. When we have to resort to drugs we are in a losing fight. Properly they should be reserved until the stage where the heart needs support. When this time comes we should never forget the part which the blood pressure plays in affecting the work of the heart. Neither should

we forget that the effect of blood pressure is a relative one, determined not alone by the absolute height of the pressure but also by the capacity of heart muscle to handle the work that is thus thrust upon it.

DISCUSSION.

Dr. W. N. Bryant, Ludlow.—I prefer to get up here in front where I can look in the faces of the men I have known so many years; it gives me a feeling of assurance which I do not get in the back of the hall. Fortunately, for me as well as yourselves, the discussion of Prof. Arnold's paper is a very simple matter. It resolves itself into expression of terms of compliment for its completeness and excellence. I am particularly glad to listen to it for several reasons, not only professional but personal. I have known something of the doctor in a social way for some years past. I have known that as a golf player, as a clam eater and a good fellow generally he was simply unapproachable, and am now glad to find that his scientific attainments suffer in no way from comparison. It is interesting to review what may be called the evolution of ideas covering a period of time. Although I can hardly pose as yet as a Nestor or a Patriarch in the profession, I have been in the practice of medicine for over thirty years and can see many changes in that time. When I began practice we knew very little about many things which we now consider important. For instance, we knew practically nothing about appendicitis; the same may be said about tuberculosis, for although we knew many facts regarding it, we knew little of what we call important to-day. The same is also true of arterio-sclerosis. The copy of Flint's practice which as a student I used, dismissed the whole matter in a dozen lines under the head of atheroma. In that wonderful reservoir of human knowledge, Ziemssen's Cyclopaedia, published about that time, with all its verbiage and lush prodigality of text, the subject of endoarteritis was disposed of in comparatively few pages and the statement is made that "the pathological changes of this disease seldom cause, during life, any noticeable symptoms."

To-day we regard this disease as one of the most important, excluding tuberculosis perhaps the most important of chronic diseases. An English authority has recently stated that arterio-sclerosis kills more men in the prime of life than any other disease. As a pension examiner, I have constant occasion to verify this and am impressed with the clinical and pathological importance of this condition. As before said, I can add little, nothing in fact, to what the doctor has said in this connection. I have noted a few things in recent reading. Aside from the classical causes, such as poisoning from lead, alcohol, etc., tobacco has been referred to. Experiments have been made by feeding tobacco to rabbits, and so far as I can learn they have not been very conclusive. In this regard we labor under the disadvantage that in the human subject post mortem findings are mostly those occurring in the later states of the malady. And again it is true that laboratory findings in animals do not always hold true with the human subject.

Another writer, a German I believe, emphasizes the great importance of regular blood-letting combined with the use of the iodides in this condition. In this connection I have wondered what influence, if any, the frequent bleedings practiced by our forefathers had in preventing the development of the disease. Among other things I note in the current journals that the main cause of the trouble seems to be what

is called "hypertonus." I was glad to know this—it makes it all seem so easy and simple. A man who would not be satisfied with that explanation must be hard to please. Dr. Bond of Richmond gives records of 160 cases, carefully excluding senility and the specific causes, and concludes that the great factor in producing these changes in the absorption of toxins from fermentative indigestion. Mental worry and anxiety incident to the strenuous life of the times is a recognized factor, and this is by no means in conflict with Dr. Bond's theory of auto-toxemia as a this same worry is the recognized cause of much of the so-called nervous dyspepsia of the present day. My personal experience leads me to attach much importance to this matter of mental worry and the consequent physical depression which goes with it. I have been rather surprised to see reported the cases of two boys, aged respectively nine and ten years, where the post-mortem examination gave clear evidence of the lesions of arterio-sclerosis. I think a specific cause in these cases was excluded. Allow me to again express my pleasure in being with you and having the opportunity to participate in this discussion.

Dr. J. H. Jackson, Barre.—These are two royal papers which have been presented by Dr. LeFevre and Prof. Arnold. They indicate, in a marked degree, the progress of medicine, and show to us who have passed the meridian of life that our study must be continued assiduously if we would remain in the ranks of successful practitioners. When we remember that the force of the heart is daily equal to lifting 120 tons one foot high in making 100,000 pulsations, or to lift its own weight 20,000 feet per hour in sending seven tons of blood through seven miles of pipes daily, we do not wonder that in three or four score years it becomes crippled or discouraged. The glassy smoothness of the tunica intima or inner coat—continuous from the heart through the arteries, capillaries and veins back to the heart again—present the least possible obstruction to the continuous flow of blood. The current is steady and continuous through these closed tubes, warming and nourishing every tissue in the body. The marvel is not that sclerosis appears as a result of excess in eating, drinking or working—or as Prof. Arnold has so gently suggested, "the tendency is greatest in the person of advancing years"; but we say with the poet:—

"Strange that a harp of a thousand strings
Should keep in tune so long."

More men than women suffer from arterio-sclerosis. Soldiers, from prolonged muscular exertion, are frequent sufferers. Not only the larger arteries are in trouble, but the smaller ones of the brain, and the coronary, as it finds the heart itself. The full and tortuous temporals, so plainly felt by the finger, and seen by the eye, are notable examples.

Microscopically, the cells of the inner coat become thickened, then fatty degeneration occurs, followed by liquifaction and calcarous infiltration. The disease thus invades the middle coat, and the canal becomes smaller, the tax upon the left ventricle is increased, and this in turn is hypertrophied in the attempt to overcome the partly occluded canals. The aecus senilis is often associated with arterio-sclerosis and strongly confirms its presence. Vertigo in frequently present and may be an aid in diagnosis. Then when the delicate mechanism can bear the strain no longer, the vessel ruptures, symptoms of apoplexy and hemiplegia follow, and life ceases. May I acknowledge a small measure of disappointment that the guests of our society have not informed us how we may turn back the hands upon Time's dial, or at least locate for us the spring of perpetual youth.

Dr. P. E. McSweeney, Burlington.—I was glad to hear the remarks regarding blood-letting. A man is taken suddenly and violently sick and we call it indigestion, and if he dies, we call it heart failure. Now I was called one morning to see a woman who had an acute attack of indigestion. She was suffering much pain as I came in. I found she also had a very weak heart. She was past sixty years of age. There was no heart lesion. She was given a hypodermic of morphine and strychnine to relieve the pain, and I left her. She did not improve and at seven o'clock I was called again. The heart action was bad; almost impossible to count the pulse. It continued to grow worse until two o'clock that afternoon, when the condition was such that a consultation was deemed advisable, and we were pretty sure the patient was going to die. We had given her strychnine, nitroglycerin and brandy and we could see no improvement whatever. We tried the salt solution injected under the breast. She was covered with a cold, clammy sweat. The pulse was almost imperceptible. We got no result from the salt solution, so we concluded we would try blood-letting. Her arm was banded and I opened a vein and let out 17 ounces of blood. She at once began to feel better and made a rapid recovery. Many of our cases die from acute dilatation of the heart. There is so much blood in the heart, it is unable to contract, and our patients die. I should like to ask Dr. LeFevre and Dr. Arnold if they have ever done any blood-letting when they found a case of acute heart failure.

Dr. LeFevre.—I will say regarding blood-letting if we have an overfilled venous, the introduction of salt solutions is only temporary and the same thing is true regarding the nitrites. The right side of the heart is embarrassed and by opening a vein and letting out the blood you get a permanent improvement. The nearer you get to the heart, the quicker the improvement. I am impressed with this in hospital work. There is a fear of loss of blood in heart failure. My experience has been when the heart has become embarrassed with blood and you have an overfilled venous, the thing for you to do is to open a vein as near the heart as possible and allow the discharge of the blood. The improvement is very rapid.

Professor Arnold.—I wish to say I have practiced blood-letting in cases where I find the blood banked up, with gratifying results. All arterio-sclerosis cases become hard cases sooner or later. As to the broad subject of blood-letting, I can not say anything. Dr. Jackson called your attention to the question of how to preserve youth. I would respectfully call your attention to Dr. Jackson as a most illustrious example of how to do it.

Dr. W. N. Bryant of Ludlow moved that Dr. LeFevre and Prof. Arnold be made honorary members of this Society, and the motion was carried.

NEPHROLITHIASIS.

By M. L. Chandler, M. D., Barre, Vt.

The first manifestation of nephrolithiasis as a rule is an attack of renal colic. Sometimes it may be preceded by an aching or uneasy sen-

sation in the loins. The condition may, in infancy, appear as infarct forming in the kidney substance, and may account for many attacks of pain in very young infants not accountable for in any other way. We are not able to make a positive diagnosis in many of these cases, though we often see the uric acid stains on the diaper of a cross baby.

In the adult large calculi may form in the pelvis of the kidney which do not for many years give rise to any severe pain, and can be diagnosed only by the tumor, pus in acid urine, or the X-ray. One of these may obstruct the entrance of the ureter and cause hydronephrosis or pyonephrosis with the whole train of degenerative changes. The calculus may become so large as to destroy the kidney by pressure. These are surgical cases and we will not go into detail. Neither shall we consider those cases where urate of ammonium or sodium, and calcareous deposits occur in white lines about the tubules and near the apices of the pyramids, due to gout or senile changes.

The form which we shall discuss is the small calculus. It may form in a tubular near the apex of a pyramid and be extended after acquiring some size or may form by accretions of urinary salts upon a nucleus of crystal or mucus or blood cells, or bacteria. They enlarge by successive layers of gelatinous or albuminous matter in which as a stroma the solids are deposited. They may consist principally of uric acid or urates and have a rounded form and smooth surface; or of oxalate of calcium which often have a mulberry shape and are rough, studded with spines; or phosphatic or carbonates of calcium, rough gray or white and granular. Cystin and xanthin are rare forms.

Calculi are not necessarily composed of the same material throughout, especially large ones. They are quite likely to commence as uric acid or as oxalatis, then become mixed with urates while the urine is acid. After obtaining some size, enough to cause irritation and inflammation and the consequent alkalinity of the urine, then the phosphatic deposits occur. Phosphatic deposits will not occur in acid urine.

The passage of calculus through the ureter may, if small, cause no pain, but the pain is not always in proportion to the size. There are sometimes premonitory symptoms, acting in the back and loins and pus in an acid urine if the stone has caused much irritation. The pain in the loins extends downward along the

*President's address, read at the annual meeting of the Vermont State Medical Society, held at Barre, Oct. 11 and 12, 1906.

course of the ureter. Sometimes, but not often, it is referred to the opposite side. The pain goes into the testicle or labia and the inner side of the thigh or sometimes into the bladder, and when the stone approaches the bladder walls the pain is referred to the end of the penis. My experience is that most cases begin in the night and I think this is usual, though many give as a cause for their starting on the downward journey some extra strain or motion which served to dislodge the stone. Others claim to stop an attack in its inception by posture alone, placing the patient in such position that the stone will fall back into the pelvis of the kidney.

The disease occurs more frequently in males, and about 75% recur only on the same side, while one in four may be bilateral.

The shape of the ureter determines to a considerable extent the time required to pass over a certain distance. It is narrow at the entrance and immediately expands, two inches below kidney it narrows again, and just below the brim of the pelvis it is narrow again. A last constriction occurs where the ureter is between the walls of the bladder. The pain is increased as the stone passes these narrow places and they are far enough apart so that the position of the pain seems to change somewhat, thus giving an opportunity to judge of progress. The length of time required varies from an hour or two to a week and even longer. The pain is not constant but is paroxysmal, possibly contraction of the ureter from the irritation by the foreign body may account for some of it.

The calculus seldom entirely occludes the ureter, so the kidney may keep free. When the urine flows by the stone we have carried along with it small amounts of blood which aid in verifying the diagnosis. When the stone escapes into the bladder the pain suddenly ceases. We may expect the stone to pass out of the bladder within 24 hours. Sometimes they remain and are the beginning of a cystic calculus.

The pain of renal colic is sometimes attended with nausea and vomiting or chills, some times so severe that the patient is almost in convulsions and rolls on the floor. In many cases they remind one of labor pains, for no matter how bad, the constitutional symptoms do not correspond in severity. In fact there are almost no constitutional symptoms until the patient becomes exhausted or the ureter becomes

much inflamed. If the ureter is not entirely closed, some blood will be seen in the urine, or may be so scanty as to be found only by centrifugal separation. These symptoms, together with the frequent micturition, a highly acid urine and the passage of the stone by the urethra next day are the symptoms upon which we must base our diagnosis.

We are called upon to act promptly and in most cases we have only the character of the pain to diagnose from, except we may exclude all other sources of colicky pain occurring in the same region. In the male, on the left side, we are concerned principally with intestinal obstruction or colic, floating kidney and gastric pain. The intestinal and gastric pains are or ought to be accompanied by tympanitis and rigidity of the abdominal walls. When the pain occurs in the right side of a woman there is a chance for one to test his diagnostic abilities, and several chances to make a mistake. I believe that most of us need to spend more time and study upon this class of cases, those associated with abdominal pain. Gall stones, pleurisy, floating kidney, intestinal colic and obstructions, appendicitis, ovarian inflammations, tubal or uterine colic, lumbago, neuralgia, tubal pregnancy and aneurysm, all may cause pain in the same region and in a comparatively healthy subject. On the spur of the moment, with no specimen of urine at hand, we can not in many cases make a satisfactory diagnosis.

The treatment of the acute symptoms consists entirely in relieving the pain. Hypodermics of morphine with atropine, hot applications locally or hot baths or large warm enemata are the best measures for relief. Sometimes it is impossible with safety to control the pain with morphine, for we must not forget that the trouble may end very suddenly and leave on our hands a patient with an overdose of morphine. It may become necessary to give an anesthetic. The general treatment of the disease is dietetic and hygienic as well as medicinal. The chemical composition of the calculus determines this. The examination is not difficult if the variety is not too badly mixed. The form and color may tell its composition.

Remembering that the most frequently found are uric acid and urates, then the oxalate of calcium, and least often the phosphates, three or four simple tests will tell what we need to know. A portion of the powdered calculus is heated on a platinum foil. If entirely vola-

tile it is either uric acid or urate of ammonium or possibly the rare form cystin or xanthin. If not volatile and turns first black, then whitens, it is either oxalates or phosphates, and if this white residue dissolve with effervescence in acids it was probably an oxalate. Portions of the powder are placed on three glass slides. A drop or two of liquor potass on one, acetic acid on another and hydrochloric on the third. If soluble in liquor potass it is uric acid or urate of ammonia; if soluble in both acids it is phosphatic; if soluble in hydrochloric alone, oxalate of calcium.

Whatever the character of the stone, large quantities of pure or distilled water are indicated. Alkaline mineral waters are useful except when the calculus is phosphatic. When we have a highly acid urine, as is the case with uric acid or oxalates, it is well to nearly neutralize the urine. But alkalinity of the urine will defeat our endeavors, for then the calculus may begin to take on a phosphatic growth. With phosphatic calculi it is desirable to render the urine acid, which is rather difficult. Boric acid and benzoic acid and saccharine will help, and the urinary antiseptics are useful, but I believe more of these cases become surgical. Calculi containing uric acid and urates demand for the patient a very moderate diet, plenty of air and a minimum allowance of nitrogenous food. Oxalic calculi were thought to be due to the oxalic acid contained in certain vegetables and fruits, as tomatoes, rheubarb, spinach, tea, and to the creation of the muscular tissue of meats. Oxalic acid may occur normally in the urine in small quantities.

Recent investigation goes to show that the excretion of oxalic acid and oxalates is not so much dependent upon the amount of oxalic acid in the food ingested as upon the amount of calcium oxide or lime present. The lime lessens very much the solubility of the oxalates in the urine, so foods containing it in abundance are withheld, especially eggs, milk, cabbage and fresh vegetables. Also it is shown that the magnesium salts increase the solubility of the oxalates in the urine, especially the chloride and sulphate. So then we should leave off the food containing much oxalic acid, also foods rich in lime, and may use meats, pastry, potatoes, peas, bread, apples, coffee and beets. Sulphate of magnesium should be given in small doses.

In a paper of moderate length it is impossible to cover all the important points. There are a

few things to which we should pay special attention. First, the differential diagnosis and the importance of examination of the urine for acidity, blood and pus. The possibility of a calculus too large to enter the ureter and the chronic condition and surgical aspect of the case. The fact that in a large majority of cases only one kidney is involved, indeed many times only one tubule in a single pyramid, is at fault, making of many cases merely a local disease. That one attack is almost certain to be followed by others. That the treatment depends altogether upon the nature of the calculus. That they are often of mixed composition, the most recent layers determining the treatment. That calculi are seldom or never found with Bright's disease. That strong and otherwise healthy people are the ones afflicted. That in treatment we must not go to extremes in changing the reaction of acid urine to alkaline.

DISCUSSION.

Dr. A. C. Bailey, Randolph.—I am sure that at this late hour and after so exhaustive a paper as we have listened to, that there is very little that can be said along this line. I think Dr. Chandler has covered the ground pretty thoroughly, both in the description of the cause and the methods of making a proper diagnosis and the treatment which should be followed. This class of cases, nephro-lithiasis, is very interesting because of its infrequency. It is now several years since I have seen a case of my own, fortunately for the patient, but not for the physician. The first thing to do is to make a proper diagnosis. If the pain is on the left side, it is not so difficult, but if the pain is on the right side, it is sometimes difficult to make a proper diagnosis. We have to refer ourselves to the location of the pain and the examination of the urine. After having made a thorough diagnosis, the treatment is easy enough. If we know the nature of the calculi, it only remains for us to use the proper remedies. The first thing is to relieve the pain. You must give morphine in sufficient doses but carefully, for the pain may subside as quickly as it started and you will have your patient suffering from an overdose of morphine. I don't know of anything that is more excruciating, judging from the complaints and look of the patient suffering from renal colic. The pain will increase until you eventually have spasms. Then to allay pain, should be our first aim. This subject has been so thoroughly and exhaustively treated that I do not think I can add anything more.

EDUCATION IN SEXUAL SUBJECTS.*

By Ferdinand C. Valentine, M. D., New York.

For many centuries problems connected with the sexual function have been studied by learned men. At the present day the study is

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continued with an increasing understanding. General appreciation of its importance to the State, the family, and the individual has in no small degree been furthered by the labors of certain members of this society. Their names would go down to posterity for this part of their work alone, even if deprived of their other disinterested efforts for the good of humanity.

Sexual subjects, as such, are unattractive to the physician. Their discussion adds nothing to his reputation and is in no wise of benefit to him. It involves allusion to unpalatable truths, thus exposing him to unpleasant criticism and unhealthy wit on the part of those who cannot grasp the fact that purely scientific considerations actuate him.

Nevertheless, an exalted altruism that is above any criticism or jest spurs on the investigations of such men as Morrow, Sturgis and Keyes, among many others equally blind to self-interest. Stimulated by these examples, I crave the privilege of offering some thoughts on this important subject, within the lines laid down by the questions proposed for this evening's consideration.

1. *Should the youth of this country be educated in a knowledge of sexual physiology and hygiene?* For a full consideration of this first proposition it seems necessary to separate the sexes, even in the discussion. In girls the early awakening of the sexual desire is so exceptional, that they hardly come within any general study. It may be offered that the sexual appetite in the majority of American females is evoked only by the purest love. In many the appetite never asserts itself and, indeed, the only impulse thereto is in the desire to gratify the object of affection. It is our belief, therefore, that education in sexual matters would only most exceptionally be of value to a girl. It might even, in one who without such instruction would never have a sexual thought, evoke a pseudodesire prompted by sheer curiosity. So, too, information might mislead the exceptional girl in whom the sexual impulse awakens early in life, into falling a ready victim to the first seducer. On the other hand, misinformation imparted by heedless servants and others offers an equal, if not a greater, danger.

With boys the matter is entirely different. They everywhere are confronted by sexual questions. From conversation with their companions to the blatant advertisements of quacks, even in the public urinals, everything tends to

attract attention to the sexual act. Therefore, even the most pure minded boy cannot escape early fruit from the tree of knowledge. This makes him aware of the genesic function, between whose use and abuse he cannot distinguish. It is evident that he urgently requires education in sexual physiology and hygiene. How he is to receive this may be better considered in the further divisions of this evening's discussion.

2. *What should be the nature and scope of this education?* If this question applies strictly to information exclusively on the physiology and hygiene of the sexual relation, such education would necessarily be brief and ineffective. If, however, the underlying purpose be to embrace in teaching the results of violations of physiological and hygienic laws, then such education would inevitably be extensive and useful. It should encompass the evils of masturbation, the disastrous effects of venereal infection both upon the mind and body; it should also cover the effects of venereal diseases upon the individual, the family, and the State.

The nature and scope of this education must of necessity be regulated according to each pupil's receptivity and ability properly to comprehend what is taught. Manly boys at 15 are perfectly competent to receive and be fittingly impressed by such instruction. Puerile men of 20 or more, are unable to grasp any but lascivious ideas from anything of a sexual nature conveyed to them. Such adult children are not rare. Every venerologist has met psychopaths to whom each curve in nature or art suggests the female breasts, nates, or genitalia. For such not even the slightest education in sexual subjects would be advisable. Indeed, it would be harmful, because every step thereof would to them contain lubricious suggestions. The nature and scope of education in sexual physiology and hygiene then must be predicated upon individualization.

3. *At what age should this instruction be given and should it be progressive according to the age of the individual?* The ripest time for instruction is the age of puberty. Mental and physical puberty arrive, however, at very different ages in different individuals; moreover, they are not always coincident even in the same individual. Some boys, sexually most precocious, are mentally far behind others of their age and vice versa. The years that a boy has acquired are consequently no certain guide to the proper time for sexual instruction.

Boys of 12 years or less with venereal diseases resulting from sexual profligacy, are not rare. Male sexual continents of 30 or more years have ceased to evoke astonishment, for the day has passed when fathers sent their sons to houses of prostitution to "sow their wild oats."

The only right age for sexual instruction is the age at which it will individually best serve for prophylactic purposes. Consequently the instruction to be effective must be complete and not progressive. It should emphasize the perils of illicit coitus, moral and physical, without which, especially the latter, the instruction would be likely to have very little deterrent effect.

4. *Through what agencies should this instruction be given; through parents, physicians or teachers?* Should our educational centres, high schools, colleges, and universities be utilized for this purpose? At first glance, this question seems to premise equal capacity on the part of those who teach, and equal receptivity on the part of those who learn. Nothing is farther from the truth.

The importance of this portion of the discussion demands its consideration with as much detail as is permissible in the time allowed for the discussion.

In another effort¹ the unfortunate fact was offered that many parents, no matter how devoted to their sons, no matter how well informed on the subject now under consideration, are psychically too far removed from their children to be able to effectively impart the needed precautionary instruction and incident advice. When, however, the father has been wise enough to establish such relations in his family that his son regards him as more than a provider and castigator, then, beyond cavil, the father is the best one to give the needed instruction. But, in the hurry and turmoil to provide for his family, the father, even when he has the intellectual equipment, frequently loses sight of moral and prophylactic needs.

I know of two instances in which mothers performed the delicate task of instructing their boys. One was a widow, the other the wife of a drunkard and debauchee. The sons of both these women remained sexually continent until they married. These exceptional instances are not cited as an argument that sexual instruction devolves naturally upon the mother.

They show merely that in isolated circumstances this delicate task has been performed successfully.

When the ideal family relation exists, the father is, in the nature of things, the best one to forewarn and therefore forewarn his son. Where it does not exist, the father's attempt at instruction can be but harmful.

Not unlike the foregoing are the arguments to be advanced for or against instruction by the teacher. If it is to come from him he must possess the qualifications that will enable him to select the psychological moment at which such instruction will be beneficial. Unless endowed with special sympathy the teacher's, like the father's, best meant instruction will be unavailing, if not worse than useless.

In a somewhat better position to teach sexual physiology and hygiene is the physician. But successful instruction, even by him, is based upon his individuality, his ability to simplify his language to the understanding of his pupil, his adroitness in showing the dangers of violation of physiological and hygienic laws, and his skill in avoiding the hysterical in his warnings.

The question whether our educational centres should be utilized for instruction in sexual subjects, partakes of an almost identical character with the preceding considerations. One striking advantage is, of course, at once apparent. In schools where individualization is applied to character building, where the teacher is wise enough to be emancipated from a habit of generalization, boys can be divided into groups of approximately equal mentality and development, and the opportune moment selected for the necessary instruction. For general class teaching, however, sexual subjects are not only highly improper, but positively dangerous.

5. *Should the teaching of sexual physiology be incorporated in our text-books of elementary hygiene?* It must be considered that school books are not necessarily closed volumes to the younger children of a household, and information that would be beneficial to one may harmfully reach others who are not ripe therefor. Then, again, classes in which elementary hygiene is properly a subject of instruction from all other points of view than the present should not be put off to another term or more because some youths may, from chapters on sexual physiology and hygiene, derive information that will prove injurious

¹ The Boy's Venereal Peril, *Journal of the American Medical Association*, July 4, 1933.

rather than advantageous. Such chapters, given lascivious interpretation by perhaps the majority of boys, may serve as stimuli to the sexual desire. The danger of this desire, once stimulated, becoming that "nagging" impulse, so well described by Keyes² before the April meeting, is too great to be disregarded. Those individuals whose mental development fits them for the study certainly can be benefited by instruction in sexual physiology. This instruction can well be supplied by chapters thereon printed separately from the school books. The instructor would then be able to give copies to such pupils as would be benefited and not depraved thereby.

To summarize these thoughts, crudely expressed, I would submit:

1. Sexual physiology and hygiene need not be formally taught girls, save in the exceptional instances in which the genesic impulse is prematurely developed.

2. Sexual physiology and hygiene should be taught every boy, when mental and sexual puberty make him capable of beneficially utilizing the knowledge.

3. The nature and scope of instruction on sexual subjects should be regulated according to each pupil's ability properly to appreciate the warnings inseparable therefrom.

4. The age at which a person may safely be instructed in sexual subjects is that age at which, in each individual case, such instruction becomes necessary for the purpose of moral and physical prophylaxis.

5. The individuality of the parent, physician or teacher should be the guide to the choice of one or the other as the exponent of the facts.

6. Educational institutions may be utilized for instruction in sexual subjects, but such instruction must be given to small groups of pupils selected because of their mental parity as nearly as may be.

7. Text-books on elementary hygiene should not contain chapters on sexual physiology. Those charged with imparting instruction on sexual subjects should be provided with separately printed chapters on the physiology and hygiene of these matters. These separately printed chapters could then be given with the greatest discretion to such pupils only whose mental development would preclude their misusing the information derived therefrom.

8. All instruction to the laity on sexual subjects should be directed essentially to serve as a groundwork for the following ideas:

- a. Many learned men hold that ante-nuptial coitus is not necessary for the health of the individual.

- b. Continence reduces the sexual desire.

- c. Gratification of the sexual impulse before marriage degrades the moral tone and exposes to serious infection.

- d. Venereal diseases are not disgraceful infections, but the result of unfortunate lack of self-control.

- e. The greatest danger at the inception of venereal diseases is in their being maltreated by quacks.

- f. If a person is so unfortunate as to contract a venereal disease, self-preservation should cause him to immediately seek the advice of his family physician.

Vermont has a new magazine, *The Vermont Review*, published at Springfield the first of each month. "Covers New England events, deals with Vermont interests." The first number of the new *Review* does its editors credit. We wish for it all success. The following we quote from the editorial announcement:

The supreme need of the reading public to-day is for the magazine that reviews other periodicals, sifts out the chaff, condenses into proper form that which should be known, and directs attention to such important articles or books as may be worthy of a detailed reading. The average reader is beginning to feel that to be well informed is utterly out of the question. And so it is if he follows the old-fashioned way of reading everything set before him. Hence, the urgent need of that class of publications known as *Reviews*, the economizers of time and recorders of history in the making. Every family should have one or more such periodicals as the basis of their reading. They are as essential to a home as is a dictionary of the English language. One's interest should be keenest in that which most concerns him. The *Vermont Review* will present monthly a summary of the thought and doings of the State, based upon a review of the State publications; a general resume of New England affairs, touching also upon the more important of national and foreign topics. The reader's attention will be focused upon that which is of consequence; solving for him the aggravating—"what was it I read, and how did it end!" problem of his daily reading.

² E. L. Keyes: *The Sexual Necessity*. Presented before the American Society of Sanitary and Moral Prophylaxis at the April, 1905, meeting.

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EDITORIAL.

By reference to the acts of medical interest passed by the legislative session of 1906 and printed in another place in this issue, it will be seen that several of these are of more than usual importance. Every physician should make himself familiar with certain of them. No. 169 is of especial importance to every practitioner. It makes very definite the duties of the physician in cases of suspected infectious or contagious diseases and it not only gives him full authority to quarantine but imposes the plain duty upon him to do so even in cases where the diagnosis is in doubt. After he has taken such preliminary measures of precaution, he is required to report the case with all the important facts to the health officer to whom the question of confirmation of the diagnosis and final quarantine is then left as in the previous law. The physician's temporary quarantine has the full binding power of that imposed by the health officer.

Some very important amendments to the medical registration law have been made. A definite standard has been set which covers preliminary education, medical study, moral character, and post-graduate medical examinations. There would seem to be no chance for slipshod medical education under this law and the effect of this act and similar ones in existence in other states on the medical college standards will be far reaching. No other profession is so forced to a high standard by legal provisions. This act is passed to meet the requirements of reciprocity. The anomalous condition under the old registration law which gave to the Board no power to revoke any license except those issued by itself has been so changed that any certificates issued by itself or the respective Board of Censors of the Vermont state medical, the Vermont state homeopathic, or the Vermont state eclectic medical societies may be revoked, after proper hearing, for cause. The pure food law passed by the session of 1904 has been amended to conform more completely to the national law and is provided with an appropriation to carry its provisions into effect.

The Journal of the American Medical Association calls the attention of the physician to the fact that the inscription "guaranteed under the Food and Drug Act, June 30, 1906," on the label of pharmaceutical preparations does not necessarily mean that these products meet the pure food and drug requirements, but is simply a guarantee which the owners file with the government to protect the retailer. Its effect is to throw the responsibility back on the manufacturer. It takes the place of a personal guarantee from the wholesaler to the retailer and protects the latter from prosecution if the product is found to be fraudulent. The expression does not mean that the products have been examined by the government or are in

any way guaranteed by it. Certain pharmaceutical houses are using this in their advertising in a way to deceive the purchaser.

The New York City Board of Health, under the direction of Commissioner Darlington, has been for some time engaged in an investigation of the condition of drugs found in the New York wholesale market. The results recently made public reveal the startling fact that seventy-two per cent. of all drugs purchased from the wholesale trade—representing all the dealers whose products could be found in New York city and practically all the pharmaceutical houses in the country—failed to meet the pharmacopeia standards. The significance of these results is appalling. If this condition is one of long standing—and we have every reason to believe it is—it means that our materia medica needs to be re-written. The physiological effect of drugs as given there is undoubtedly based upon dosage of the supposedly standard commercial products. It is little wonder that discordant results are obtained in the usage of drugs with the strength of these preparations varying from twenty-five to seventy-five per cent. from the standard, as Dr. Darlington's results seem to show. How much of the variation which we have been accustomed to ascribe loosely to individual idiosyncrasies is really due to irregularities in dosage? These conditions are apparently the result of hasty and careless manufacture rather than deliberate attempt to defraud, some products showing an alkaloidal strength above the standard. An article by Dr. William P. Robinson in the *Medical Record*, December 29, '06, suggests another cause for these conditions in the unreliability of standardization methods. Many of these are cumbersome, unreliable and practically unworkable. This fact has been recognized by analysts for some time. For example, the pharmacopœal method of assaying nux vomica for its strychnine

content is unreliable from the fact that the brucine contained in the extract may or may not be oxidized. In the latter case increasing the apparent strychnine content above the actual amount of that alkaloid present by the amount of brucine present and un-oxidized. As Dr. Robinson points out, if these methods are unreliable or unworkable in the hands of the best assayists in the country, how can the commercial houses be expected to furnish a uniformly accurate product as the result of this standardization? As a matter of fact probably few of them attempt such a result. This is a condition of affairs which demands a remedy brought about either by simplified and improved methods of assay or by the use of extractive principles which can be used with definite and reliable dosage.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. A. A. Minott has moved from Morrisville to Johnson.

Dr. C. K. Johnson, recently of Bristol, has purchased a house in Burlington and located there for practice.

Dr. J. H. Miller, University of Vermont, '06, has bought out the practice of Dr. J. H. Bufum at Wallingford.

Dr. Willis B. Fitch of St. Johnsbury was married Dec. 11 to Miss Marion F. Moore, the Rev. James A. Thompson officiating.

The new State Board of Health has organized by electing Dr. C. S. Caverly president; Dr. H. D. Holton, secretary; and Dr. F. Thos. Kidder, treasurer.

The marriage of Dr. Roy Sidney Morse, University of Vermont, 1905, and Miss Flora Patrick occurred at Burlington, Jan. 26. Dr. Morse is connected with the Hopeworth sanitarium at Bristol, R. I.

Dr. R. C. Jackson, University of Vermont, '06, has accepted a position as assistant physician at the Hartford Retreat, Hartford, Conn.

Dr. F. H. O'Connor of Brattleboro has returned from the New York Post-Graduate Hospital, where he has been taking special work in rectal and renal surgery, gynecology and general surgery.

Dr. Leonard B. Rowe, a recent graduate of the University of Vermont College of Medicine, was married at Oakland, Dec. 27, to Miss Lana Bliss Judd. Dr. Rowe has bought the practice of Dr. O. W. Sedgwick at Wales, Mass., and will locate there.

Dr. Marshall C. Twitchell of Burlington and Miss Mary Vaughan Buell were married Dec. 27 at "Redstone," the home of the bride, by the Rev. A. C. A. Hall, Bishop of Vermont. Only immediate friends were present. Dr. and Mrs. Twitchell will travel in the south for about two months, and on their return will reside at "Redstone."

The 54th session of the University of Vermont College of Medicine opened Dec. 1, 1906. The total number of matriculations is 165, with an entering class of 52, being a gain of seven over that of last year. The opening address was by Dr. F. A. L. Lockhart of Montreal, on "Medicine in Shakespeare." There have been no changes in the personnel of the faculty.

At the annual meeting of the Barre City Hospital Association, Dec. 20, officers were elected for the ensuing year and plans discussed for the opening of a public city hospital. To further the project and to see if a beginning could not be made this coming spring, a committee of five was appointed to prepare a statement of the needs for opening a hospital in a small way to begin with, and the expense of conducting the same for a year. When this statement is made the association will be ready to receive contributions for making a beginning. At the meeting several generous offers of assistance were made, and it looks as if a beginning would surely be made the coming year. The officers elected were: President, Dr. O. G. Stickney; vice-president, Dr. B. W. Braley; clerk, Dr. J. W. Jackson; trustees for three years, W. A. Boyce, M. L. Chandler, O. G. Stickney and E. A. Smith. The committee appointed to prepare a statement of what will be required to make a beginning was Drs.

Chandler, Stickney, McSweeney, J. W. Jackson and Ligouri.

The State Board of Health has appointed Dr. L. P. Sprague, at present on the staff of the Mary Fletcher Hospital, food inspector and State analyst to work at the State laboratory in conjunction with the State Board. Dr. Sprague will be at the head of a department created by the laws of 1904, which provides for the inspection of foods, drugs and other articles of common use. No appropriation accompanied the act of 1904, but the last Legislature provided an annual appropriation of \$2,500 for the department. The salary of the inspector will be paid from this appropriation and the balance will be devoted to the other expenses incidental to the prosecution of the work. Dr. Sprague graduated from the College of Medicine of the University of Vermont in June, 1906. He had previously pursued a course in the academical department and done a considerable amount of work in the laboratories of the Department of Agriculture at Washington, and thus brings to the work a thorough and extensive preparation. His home is in East Randolph.

The schedule of clinics at the College of Medicine during the remainder of the session is as follows:

Neurology. Dr. Shirres—1.30 to 3.30, Jan. 2, 16, 23; Feb. 6, 13, 27; March 6, 20, 27; April 10, 17.

Mental Diseases. Dr. Wasson—Fridays, 1.30 to 3.30, Feb. 15 to April 19.

Pediatrics. Dr. Pisek—Daily, April 15 to 26.

Orthopedics. Dr. Shands—Daily, May 13 to 24.

Dermatology. Dr. Campbell—1.30 to 3.30, Jan. 9, 30; Feb. 20; March 13; April 3, 24.

Veneral. Dr. Pedersen—Daily, Feb. 4 to 15.

Gynecology. Dr. Maynard—8.30 to 11.30, Fridays, Dec. 7 to Jan. 18; Dr. Lockhart—8.30 to 11.30, Fridays, Jan. 25 and Feb. 1; 1.30 to 4.30, Thursdays, Feb. 8 to May 2.

Eye, Ear, Nose and Throat. Dr. Twitchell—3.30 to 5.30, Tuesdays and Fridays, April 2 to June 14.

General Medicine. Dr. Jenne—10.30 to 12.30, Thursdays; Dr. Beecher—9.30 to 11.30, Tuesdays, both to May 9; Dr. Kelly—8.30 to 10.30, Tuesdays and Fridays, May 14 to June 14.

General Surgery. Dr. Wheeler—8.30 to 11.30, Saturdays; Dr. Tinkham—9.30 to 11.30, Wednesdays.

NEW HAMPSHIRE.

Dr. George L. Bastian has been appointed city physician of Manchester. Dr. Bastian is a native of Lawrence, Mass., and a graduate of Harvard Medical School.

The physicians of Farmington and vicinity have organized under the name of the Farmington Medical Society, and have elected the following officers: President, G. W. Ellison; vice-president, R. J. P. Goodwin; secretary, P. H. Greeley; treasurer, H. P. Wheatley. One of the first results of this organization is the issuing of a fee table, so-called, to take effect Jan. 1, 1907, establishing a minimum fee for services, advice or medicine, and an arbitrary rate for all calls between 9 p. m. and 7 a. m.

The quarterly meeting of the Graduate Nurses' Association of New Hampshire was held at Manchester, Dec. 10, with nearly 50 members from all parts of the state present. The principal object of this session was to discuss a bill to be presented at the next Legislature for the state registration of nurses in New Hampshire. In the absence of the president, Miss Morey of Vermont, the vice-president, Miss Ida Shepard of Hanover, was in the chair. Although the association was only organized in April, it is doing much toward solving many important questions in that line of work. The organization now has the following list of officers: President, Miss Morey, Wilder, Vt.; first vice-president, Miss Ida Shepard, Hanover; second vice-president, Miss Haskell, Dover; recorder and treasurer, Mrs. C. V. S. Glidden, Concord; corresponding secretary, B. M. Truesdell, Concord.

Dr. Granville P. Conn, of Concord, has published a book entitled "History of the New Hampshire Surgeons in the War of the Rebellion." Dr. Conn formerly practiced in Richmond, Vt., and was appointed assistant surgeon of the 12th Vermont regiment in August, 1862. Before the regiment took the field, he was on duty at Brattleboro, where Brigade Surgeon E. E. Phelps of Windsor and Dr. Conn organized the United States General Hospital with a thousand beds. After returning from the army he removed to the capital of his native state, Concord, N. H., where he has been

recognized for 50 years as one of its leading physicians, having been secretary and president of the New Hampshire Medical Society; a member of the New Hampshire board of railroad commissioners, and holding other offices of responsibility and trust. For the past 25 years he has been surgeon to the Boston & Maine railroad. He is a member of the Reunion society of Vermont officers, and an honorary member of the Vermont State Medical Society.

MAINE.

Dr. L. J. Wright, University of Vermont, '04, until recently in practice in Portland, has located in Hermon.

Gov. Cobb has appointed Mrs. Frederick Coney of Randolph as trustee of the Maine insane hospital at Augusta.

Dr. H. L. Craft, a graduate of the University of Vermont College of Medicine, 1906, and recently of Malden, Mass., has located at North Fryeburg.

Dr. Bigelow T. Sanborn, superintendent of the state insane hospital at Augusta, has submitted his annual report, in which he shows that there are now under treatment at the institution 991 persons, of whom 566 are men and 425 are women. The largest number of commitments during the year were for hereditary insanity; alcoholism was second, traumatism third and domestic afflictions fourth. During the year 47 persons recovered and 90 died. The largest number of persons admitted were between the ages of 36 and 39 years. Six persons were admitted between the ages of 80 and 90 years. One hundred and nine were married, 114 were single, 49 were widowed and 6 were divorced.

Dr. Alonzo Garcelon of Lewiston, former governor of Maine, died at the home of his daughter in Medford, Mass., Dec. 8. He was born in Lewiston, May 6, 1813, and was the oldest living ex-governor and the only one living who at the time of his election was a democrat. He served only one term, that of 1879. Dr. Garcelon was graduated from Bowdoin college in 1836, studied medicine at Dartmouth school and at the Medical school of Ohio, from which he graduated in 1839. Immediately he began the practice of his profession in Lewiston and continued until his death.

He served in both branches of the state Legislature during the time from 1853 to 1857, and in 1871 was mayor of Lewiston. In company with the late William H. Waldron, he started the *Lewiston Journal* in 1847, it being the first newspaper in the city. He also built the first mill there, the Lincoln.

The Medical and Surgical Society of Northern Aroostook unanimously adopted the following resolutions on Oct. 2, 1906: *Resolved*, first, that the fee for old line insurance examination shall be five dollars (\$5.00) up to five thousand dollars (\$5,000), disregarding all urinary analysis clause; including microscopic examination of urine, sputum, etc., ten dollars (\$10.00). Second, for examination for fraternal and assessment companies not less than two dollars (\$2.00) net. Third, inspection for industrial insurance the fee shall be one dollar (\$1.00). Also *resolved*, that a printed copy of this action be sent to every insurance company doing business in the State of Maine, to each member of the Northern Aroostook Medical and Surgical society, to the Maine Medical society, to the New Brunswick Medical society, and to the Journal of the American Medical Association, Chicago, Ill.

NEW YORK.

The 60th annual meeting of the Medical society of the county of Franklin was held in Malone, Jan. 8. The following papers were read: "Pneumonia in Children," Dr. H. H. Reynolds, Malone; "Pneumonia in Adults," Dr. William N. McCartney, Fort Covington; "Pneumonia in the Aged," Dr. F. F. Finney, Burke; "Nursing Sore Mouth," Dr. F. Markle, Bangor; "Real Symptoms of Tuberculosis," Dr. H. M. Kinghorn, Saranac Lake; address on the "Principles of Opsonius," Dr. E. R. Baldwin, Saranac Lake; "Reports of Interesting Cases," Dr. A. L. Dust, Brushton. The following officials were elected for 1907: President, Dr. Hugh M. Kinghorn, Saranac Lake; vice-president, Dr. A. E. Moody, Dickinson Center; secretary and treasurer, Dr. G. M. Abbott, Saranac Lake; censor for three years, Dr. Henry Furness, Malone.

In the so-called eczema marginatum or that of the scrotum, constipation is, in the majority of instances, the most important underlying causative factor, which, when removed, will combat the local condition simultaneously.—Med. Council.

STATUTES ON MEDICAL SUBJECTS.

Public Acts passed by the General Assembly of the State of Vermont during the session of 1906.

Some of the medical subjects passed upon by the Vermont Legislature in its last session are of more than ordinary importance, attention to which is called in an editorial in this issue. Following is the complete text of the acts and amendments of special interest to the medical profession:

NO. 164—AN ACT TO AMEND SECTION 7 OF NO. 133 OF THE ACTS OF 1904, ENTITLED "AN ACT CREATING A BOARD OF MEDICAL REGISTRATION."

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 7 of No. 133 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 7. A person twenty-one years of age and of good moral character, who is a graduate of a legally chartered medical college or university, having power to confer degrees in medicine and surgery, and such medical college or university being recognized as determined by the board, shall upon payment of a fee of fifteen dollars, be entitled to examination, and, if found qualified, shall be licensed to practice medicine and surgery in this state and receive a license certificate signed by the president and secretary of the board. A person refused a license may be re-examined at a regular meeting of the board within one year of the time of such refusal without an additional fee. Said board may refuse to issue certificates provided for in this section to individuals who have been convicted of the practice of criminal abortion, or who have, by false or fraudulent representations, obtained or sought to obtain practice in their profession, or, by false or fraudulent representation of their profession, have obtained or sought to obtain money or any other thing of value, or who assumes names other than their own, or for any other immoral, unprofessional or dishonorable conduct, and said board may for like causes revoke any certificate issued by itself or the respective board of censors of the Vermont state medical, the Vermont state homeopathic, or the Vermont state eclectic medical, societies; provided that no certificates shall be revoked or refused until the holder or applicant is given a hearing before the board.

Sec. 2. This act shall take effect from its passage. Approved November 22, 1906.

NO. 165—AN ACT TO AMEND SECTIONS 6 AND 14 OF NO. 133 OF THE ACTS OF 1904, ENTITLED "AN ACT CREATING A BOARD OF MEDICAL REGISTRATION," RELATING TO THE COMPENSATION OF THE MEMBERS OF THE BOARD AND REQUIREMENTS FOR EXAMINATIONS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 6 of No. 133 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 6. Each member of the board shall receive four dollars a day for services rendered and necessary expenses for time spent in examining applicants and granting licenses; provided that if the amount received by said board for examinations, certificates

and licenses is not sufficient to pay the per diem and expenses allowed said board, the auditor of accounts shall allow the expenses of said board in full and such percentage of the per diem that the expense to the state of the board shall not exceed the receipts of said board.

Sec. 2. Section 14 of No. 133 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 14. The board shall, without examination, issue a license to a reputable physician or surgeon who shall personally appear and present a certified copy of a certificate of registration or a license issued to him in a state whose requirements for registration are deemed by said board as equivalent to those of this state; provided such state shall accord a like privilege to holders of licenses granted under the laws of this state. The fee for such license shall be twenty dollars. The standard of requirements for admission to practice in this state shall be as follows:

1. Academic: Preliminary requirements to be a high school education or its equivalent, such as would admit the student to a recognized university.

2. Medical: Four courses of lectures of nine hundred hours each, in four different calendar years prior to graduation from a medical college approved by this board. Practitioners graduated prior to 1901 are exempt from this requirement.

3. Moral: Applicant shall present qualifications as to moral character and professional standing from two reputable physicians in the county in which he resides, and from the town clerk of his place of residence.

4. Examining: The examination in writing shall embrace twelve subjects of ninety questions, viz.: anatomy and bacteriology, practice of pathology, surgery and legal medicine, obstetrics and gynecology, physiology and hygiene, chemistry, materia medica and therapeutics. The general average must be at least 75 per cent. in order to obtain a license.

Sec. 3. This act shall take effect from its passage. Approved December 10, 1906.

No. 166—AN ACT TO AMEND SECTION 10 OF NO. 134 OF THE ACTS OF 1904, ENTITLED "AN ACT TO REGULATE THE PRACTICE OF OSTEOPATHY," RELATING TO COMPENSATION OF THE MEMBERS OF THE BOARD.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 10 of No. 134 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 10. Each member of the board of osteopathic examination and registration shall receive four dollars a day for services rendered, and necessary expenses. If the amount received by said board for examinations, certificates and licenses is not sufficient to pay the per diem and expenses allowed said board, the auditor of accounts shall allow the expenses of said board in full and such percentage of the per diem that the expense to the state of the board shall not exceed the receipts of such board.

Approved December 14, 1906.

No. 167—AN ACT TO CONTINUE THE TUBERCULOSIS COMMISSION.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. The governor shall, in November 1906, appoint a state tuberculosis commission consisting of three persons, to continue the work heretofore done by the commission appointed under the authority of No. 142 of the Acts of 1904.

Sec. 2. Said commission shall conduct a campaign of education throughout the state regarding the best known methods of preventing and curing tuberculosis and of limiting by modern sanitary precautions, the spread of such diseases among the people.

Sec. 3. In prosecuting this work said commission shall make use of such methods as are suggested in No. 142 of the Acts of 1904, and of such other methods as, in its judgment, are best adapted to attain the desired end.

Sec. 4. Each member of said commission shall receive four dollars a day and actual expenses while engaged in the duties pertaining to this work, and the secretary of the commission shall be authorized to employ such assistance, clerical or otherwise, as may be necessary, at the expense of the state, upon the order of the governor; but the entire expense for services, expenses and assistance in any one year shall not exceed two thousand dollars.

Sec. 5. Said commission shall serve until the next biennial session of the general assembly and shall make a full report thereto of its work, with such recommendations as it deems best.

Sec. 6. This act shall take effect from its passage.

Approved November 23, 1906.

No. 168—AN ACT IN ADDITION TO NO. 113 OF THE ACTS OF 1902, RELATING TO THE PRESERVATION OF THE PUBLIC HEALTH.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. The state board of health shall have power to designate a health officer of a town adjoining a gore or unorganized town, as the health officer of such gore or unorganized town, and it shall be the duty of such health officer so designated to report to the secretary of the state board of health every case of contagious disease named in number one hundred thirteen of the acts of 1902 of which he has information or knowledge as existing in such gore or unorganized town, and shall in such gore or unorganized town do and perform all acts required of the health officer of a town precisely the same as if he were the health officer of such gore or unorganized town, and upon receiving such information from such health officer the state board of health shall do and perform all acts in relation to such cases the same as if such information came from the health officer of a town.

Sec. 2. The head of a family in such gore or unorganized town in whose home there occurs a case of infectious or contagious disease dangerous to the public health shall immediately give notice to the health officer designated. A physician who knows or suspects that the person in such gore or unorganized town whom he has been called to attend is sick or has died of a communicable disease dangerous to the public health, shall at once quarantine and report to such health officer the place where such cause exists, the name, degree of virulence and cause or source of the disease, and such other facts relating thereto as may be necessary for the health officer to make examination and act in the premises. If the head of a family or physician fails to give reasonable notice to such health officer of the existence of such a disease, he shall be fined not more than fifty dollars nor less than ten dollars with costs of prosecution.

Sec. 3. Said health officer shall report the births, marriages and deaths and the vital statistics in such gore or unorganized town to the town clerk of the town where he resides, who shall record the same as is now required in relation to such statistics in a town.

Sec. 4. The compensation of such health officer shall be the same as that allowed to the health officer of a town and shall be paid by such town or unorganized town and included in the taxes assessed thereon.

Sec. 5. This act shall take effect from its passage.
Approved December 6, 1906.

No. 169—AN ACT TO AMEND SECTION 17 OF NO. 113 OF THE ACTS OF 1902, RELATING TO THE QUARANTINE OF INFECTIOUS OR CONTAGIOUS DISEASES.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 17 of No. 113 of the acts of 1902, is hereby amended so as to read as follows, viz.:

Sec. 17. The head of a family in whose home there occurs a case of infectious or contagious disease dangerous to the public health shall immediately give notice thereof to the local health officer of the town in which he lives. A physician who knows or suspects that a person whom he has been called to attend is sick or has died of a communicable disease dangerous to the public health shall immediately quarantine and report to the health officer the place where such case exists and the name, degree of virulence and cause or source of the disease, and such other facts relating thereto as may be necessary for the health officer to make examination and act in the premises, provided that if the attending physician at the time of his first visit is unable to make a specific diagnosis, he may quarantine the premises temporarily and until a specific diagnosis is made, and post thereon a card upon which the word "quarantine" shall be plainly written or printed. Such quarantine shall continue in force until the health officer examines and quarantines as is provided for in this act. A head of a family or physician who fails to give reasonable notice to the health officer of the existence of such disease shall be fined not more than fifty dollars nor less than ten dollars, with costs of prosecution.

Sec. 2. All acts and parts of acts inconsistent with this act are hereby repealed.

Approved November 21, 1906.

No. 170—AN ACT RELATING TO THE STATE BOARD OF PHARMACY, AND TO AMEND SECTION 4666 OF THE VERMONT STATUTES.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. A sum not to exceed five hundred dollars is hereby annually appropriated for the payment of the per diem and necessary expenses of the state board of pharmacy.

Sec. 2. The governor shall annually designate one member of the board of pharmacy to attend, as a delegate, the annual meeting of the national boards of pharmacy. Said delegate shall receive no per diem for the time spent by him in attending such meeting, but shall receive his necessary expenses.

Sec. 3. Section 4666 of the Vermont Statutes is hereby amended so as to read as follows, viz.:

Sec. 4666. Each member of the board of pharmacy shall receive three dollars a day for services rendered, and necessary expenses. If the amount received by said board in any fiscal year for licenses under the provisions of this chapter and the amount of five hundred dollars is not sufficient to pay the per diem and expenses allowed said board, the auditor of accounts shall allow the expenses in full and such percentage of the per diem that the expense to the state of the board shall not exceed the receipts under

the provisions of this chapter and such sum of five hundred dollars.

Sec. 4. There shall be available for the purposes of the board, under this act for the fiscal year ending June 30, 1907, a pro rata proportion of the annual appropriation hereby made.

Sec. 5. This act shall take effect from its passage.
Approved December 10, 1906.

No. 172—AN ACT IN AMENDMENT OF AND IN ADDITION TO NO. 90 OF THE ACTS OF 1900, ENTITLED "AN ACT ESTABLISHING A LABORATORY OF HYGIENE AND REPEALING NO. 115 OF THE ACTS OF 1898," RELATING TO AUTOPSIES.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 4 of No. 90 of the acts of 1900, is hereby amended so as to read as follows, viz.:

Sec. 4. The use of the laboratory, and all investigations mentioned in this act therein made, shall be free to the people of this state. And whenever the state's attorney of any county on the order of a judge of the supreme court or the attorney general, shall request for use in any criminal case pending in his office an expert investigation, chemical or pathological, of any substance, such investigation shall be made at the laboratory forthwith, without charge to the state, and the expert making such investigation shall submit the results of his work to the state's attorney at whose request it is done and shall attend court as a witness at any place in the state when required to do so by subpoena and submit in court the results of his investigations, and shall be paid as such witness his actual expenses, of attendance, when summoned by the state.

Sec. 2. If a judge of the supreme court or the attorney general orders an autopsy on the body of a person, as provided under section 1934 of the Vermont Statutes, he shall therein direct that such autopsy shall be made by the pathologist of the laboratory of hygiene, or under his direction, unless for good cause shown said judge or the attorney general otherwise directs. At such autopsy said pathologist shall take and preserve under proper seal such portions of the body and its contents, together with such other articles as he judges may require subsequent examination in the investigation of the case. For performing this autopsy the pathologist shall be paid his actual expenses, including the expenses of his assistant. The auditor of accounts shall, upon presentation of the account for such expenses, duly sworn to by such pathologist, and approved by the state's attorney of the county or the attorney general, draw his order therefor.

Approved November 15, 1906.

No. 173—AN ACT TO AMEND SECTION 10 OF NO. 140 OF THE ACTS OF 1904, ENTITLED "AN ACT RELATING TO THE REGISTRATION OF BIRTHS, MARRIAGES, DIVORCES AND DEATHS," RELATING TO REPORTS OF BIRTHS AND DEATHS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 10 of No. 140 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 10. Cases of still births shall be considered as births and deaths, and shall be reported and recorded among the births and deaths as provided in this act. The fee for making reports of births and deaths shall be twenty-five cents each, to be paid by the town upon a statement by the clerk that the returns have

been made in accordance with the provisions of this act, and the clerk shall annually, in the first week of January, submit a statement of all reports of births and deaths received by him to the town treasurer, who shall forthwith remit to the several physicians who made such reports, the amount due them for making the same; and a clerk or treasurer who fails so to do shall be fined not more than ten dollars for each offense. For each certificate for permission to bury, entomb or remove a dead body, issued under the provisions of this act, the health officer, deputy health officer or other person issuing the same shall receive the sum of twenty-five cents, to be paid by the person to whom the certificate is issued.

Sec. 2. This act shall take effect from its passage.
Approved November 16, 1906.

NO. 174—AN ACT TO PROVIDE FOR THE REGISTRATION OF BIRTHS, MARRIAGES AND DEATHS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. A town clerk shall, on the first day of each month, make a certified copy of all births, marriages and deaths filed in his office during the previous month, whenever the parents of a child born, or a bride or a groom, or a deceased person was a resident in any other town at the time of such birth, marriage or death, and shall transmit such certified copies to the clerk of the town in which such parents of a child born, the bride or the groom, or the deceased was a resident at the time of such birth, marriage or death, and the clerk receiving such copies shall file the same. Such certified copies shall be made upon blanks to be furnished by the secretary of the state board of health.

Sec. 2. A town clerk shall receive fifteen cents for each certified copy of a birth, marriage or death certificate furnished or recorded in accordance with the provisions of the preceding section, the same to be paid by the town for which said clerk acts.

Approved December 18, 1906.

NO. 175—AN ACT TO AMEND SECTION 11 OF NO. 143 OF THE ACTS OF 1904, ENTITLED "AN ACT PROVIDING FOR THE INSPECTION OF FOODS, DRUGS AND OTHER ARTICLES IN COMMON USE," RELATING TO THE POWERS OF HEALTH OFFICERS AND MAKING AN APPROPRIATION FOR THE INSPECTION OF FOODS AND DRUGS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 11 of No. 143 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 11. A health officer of a town may inspect the carcasses of slaughtered animals intended for food, and meat, fish, vegetables, produce, fruit or provisions found in his town, and for such purpose may enter any building, enclosure or other place in which such carcasses or articles are stored, kept or exposed for sale. If such carcasses or articles are designated for food for man and are found tainted, diseased, corrupted, decayed, unwholesome, or from any cause unfit for food, the local board of health shall seize the same and cause it to be forthwith destroyed or disposed of otherwise than for food. A member of the state board of health, or the director, chemist or assistant chemist at the state laboratory of hygiene, shall have the same powers as local health officers have under the provisions of this section.

Sec. 2. The sum of twenty-five hundred dollars is hereby annually appropriated to be expended under the direction of the state board of health for paying

the expenses incurred in carrying out and enforcing the provisions of No. 143 of the acts of 1904, section 4345 and sections 5073 to 5077, inclusive, of the Vermont Statutes, and for providing for the inspection of foods and drugs.

Approved December 10, 1906.

NO. 176—AN ACT IN AMENDMENT OF AND IN ADDITION TO NO. 143 OF THE ACTS OF 1904, ENTITLED "AN ACT PROVIDING FOR THE INSPECTION OF FOOD, DRUGS AND OTHER ARTICLES IN COMMON USE."

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. Section 2 of No. 143 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 2. The term "drug" as used in this act shall include all medicines and preparations recognized in the United States pharmacopoeia or national formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or beast. The term "food" as used herein shall include all articles, whether simple, mixed or compound, used for food, drink, confectionery, or condiments by man or beast.

Sec. 2. Section 3 of No. 143 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 3. For the purposes of this act an article shall be deemed to be adulterated:

In case of drugs:

First. If, when a drug is sold under or by a name recognized in the United States pharmacopoeia or national formulary, it differs from the standard of strength, quality or purity, as determined by the test laid down in the United States pharmacopoeia or national formulary official at the time of investigation, provided that no drug defined in the United States pharmacopoeia or national formulary shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the bottle, box or other container thereof, although the standard may differ from that determined by the test laid down in the United States pharmacopoeia or national formulary.

Second. If its strength or purity falls below the professed standard or quality under which it is sold.

In the case of confectionery:

If it contains terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spirituous liquor or compound or narcotic drugs.

In the case of food:

First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Second. If any substance has been substituted wholly or in part for the article.

Third. If any valuable constituent of the article has been wholly or in part abstracted.

Fourth. If it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health; provided, that when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water or otherwise, and directions for the removal of said preservative shall be printed on the covering of the package, the provisions of this act shall be construed

as applying only when said products are ready for consumption.

Sixth. If it consists in whole or in part of a filthy, decomposed or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter.

Sec. 3. No. 143 of the acts of 1904, is hereby amended by adding thereto a new section to be numbered section 4, which shall read as follows, viz.:

Sec. 4. The term "misbranded," as used herein, shall apply to all drugs, or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the state, territory or country in which it is manufactured or produced.

For the purposes of this act an article shall also be deemed to be misbranded.

In case of drugs:

First. If it be an imitation of or offered for sale under the name of another article.

Second. If the contents of the package as originally put up shall have been removed, in whole or in part, and other contents shall have been placed in such package, or if the package fail to bear a statement on the label of the quantity or proportion of any alcohol, morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate or acetanilide, or any derivative or preparation of any such substances contained therein.

In the case of food:

First. If it be an imitation of or offered for sale under the distinctive name of another article.

Second. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package, or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate or acetanilide, or any derivative or preparation of any substances contained therein.

Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

Fourth. If the package containing it or its label shall bear any statement, design or device regarding the ingredients or the substances contained therein, which statement, design or device shall be false or misleading in any particular; provided that an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases:

First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

Second. In the case of articles labeled, branded or tagged so as to plainly indicate that they are compounds, imitations or blend, and the word "compound," "imitation," or "blend," as the case may be, is plainly stated on the package in which it is offered for sale; provided that the term "blend" as used

herein shall be construed to mean a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only; and provided further, that nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this act may require to secure freedom from adulteration or misbranding.

Sec. 4. Section 13 of No. 143 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 13. An apothecary, druggist or other person who sells arsenic, corrosive sublimate, nux vomica, chloroform, strychnine, morphine, opium, cocaine, carbolic acid or prussic acid, or its salts, shall at the time of such sale, make a record of such sale in a book kept for that purpose, specifying the kind and quantity of the article sold, and the time when and the name of the person to whom such sale is made, which record shall be open to health officers, members of the state board of health and state officials who may wish to examine the same.

Sec. 5. Section 20 of No. 143 of the acts of 1904, is hereby amended so as to read as follows, viz.:

Sec. 20. Justices shall have concurrent jurisdiction with the county court of offenses under this act to the extent of fining the respondent fifty dollars, or may bind him over for trial by county court. It shall be the duty of the state's attorney to whom the state board of health shall report a violation of this act to cause proceedings to be commenced and prosecuted in the proper court without delay, for the enforcement of the penalties as in such case herein provided.

Sec. 6. No. 143 of the acts of 1904, is hereby amended by renumbering sections 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25, as sections 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and 26 respectively.

Sec. 7. This act shall take effect July 1, 1907.

Approved December 19, 1906.

NO. 182—AN ACT TO PREVENT THE SALE OF DISEASED ANIMALS AND MEAT AND TO REPEAL SECTION 5074 OF THE VERMONT STATUTES, SECTIONS 3, 6 AND 8 OF NO. 85 OF THE ACTS OF 1902, AND SECTIONS 10 AND 21 OF NO. 145 OF THE ACTS OF 1904.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. A person who sells or offers to sell or keeps with intent to sell for food purposes, or ships out of the state, or keeps with intent to ship out of the state, for food purposes, the flesh of any animal or fowl which died or was killed when diseased, or the flesh of a calf which was less than four weeks old or weighed less than fifty pounds, dressed weight, when killed, shall be imprisoned not more than one year, or fined not more than three hundred dollars, or both. The possession of any such flesh dressed or packed in a manner suitable for sale or use as food shall be prima facie evidence of the intent to sell the same, or to ship the same out of the state, for use as food.

Sec. 2. A person who sells or offers to sell or keeps with intent to sell an animal known to him to be infected with bovine tuberculosis or any other contagious disease, or any disease dangerous to public health, shall be imprisoned not more than one year, or fined not more than three hundred dollars.

Sec. 3. A person who brings cattle or other domestic animals into this state, contrary to the provisions of the law relating to the importation of cattle and

other domestic animals, shall be fined fifty dollars for each offense, and such importation of each separate animal shall constitute a distinct offense.

Sec. 4. Section 21 of No. 143 of the acts of 1904, is hereby repealed.

Sec. 5. Section 5074 of the Vermont Statutes, sections 3, 6 and 8 of No. 85 of the acts of 1902, and section 10 of No. 148 of the acts of 1904, are hereby repealed except as to offenses committed or prosecutions commenced before this act takes effect, but as to such offenses and prosecutions such sections shall continue and remain in force.

Sec. 6. This act shall take effect from its passage.

Approved December 19, 1906.

NO. 186—AN ACT TO PROHIBIT THE CARELESS DISTRIBUTION OF MEDICINES, DRUGS AND CHEMICALS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. A person, firm or corporation that distributes or causes to be distributed a free or trial sample of a medicine, drug, chemical or chemical compound, by leaving the same exposed upon the ground, sidewalks, porch, doorway, letter-box or in any other manner, that children may become possessed of the same shall be fined not more than three hundred dollars nor less than one hundred dollars with costs of prosecution.

Approved December 10, 1906.

NO. 187—AN ACT TO PROHIBIT EXPECTORATING ON PUBLIC SIDEWALKS AND IN PUBLIC BUILDINGS.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. A person who expectorates on a public sidewalk or in a public building except in receptacles provided for that purpose shall be fined not more than ten dollars for each offense.

Sec. 2. A suitable notice containing a copy of this act shall be posted in all public buildings.

Approved December 15, 1906.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

SURGERY.

ETHER VS. CHLOROFORM ANESTHESIA.

LOMBARD (*Medical Record*, Dec.), in an article entitled "More Ether; Less Chloroform," publishes the following letter which he sent to one hundred of the leading surgeons of the United States and the very interesting and suggestive replies which he received:

"I am endeavoring to ascertain the relative favor in which ether and chloroform are now held by the general surgeons in this country, and with that purpose in view I have taken the liberty of sending you, among others, a copy of the following list of questions. The replies to these will be embodied in a paper on "More Ether; Less Chloroform," which I expect to read before the Harlem Medical Association of New York on October 3, 1906.

"1. Which anesthetic do you prefer in general surgical work? (a) ether (b) chloroform?

"2. Which method of administration?

"3. As preliminary to the use of ether, do you prefer (a) nitrous oxide? (b) ethyl chloride?

"4. In your opinion, do you think anesthetics and their method of administration receive proper attention in the curriculum of our medical colleges?

"5. How many deaths have come under your observation from the administration of (a) ether? (b) chloroform?"

Seventy-nine answers were received from leading surgeons in twenty-three states. The following is a summary of these answers:

Question 1. Sixty-seven preferred ether; 7 chloroform; 1 anesthol; 4 were non-committal.

Question 2. In the case of ether, 38 used the drop method; 16 the Bennett inhaler; 11 the cone; 8 the Allis inhaler. If chloroform were used 11 preferred the drop method, 1 the vapor method.

Question 3. Forty-eight nitrous oxide; 3 ethyl chloride; 3 morphine hypodermically; 1 A. C. E. mixture; 1 anesthol occasionally; 20 nothing or non-committal.

Question 4. Sixty-eight answered in the negative.

Question 5. Ether, 53 deaths; chloroform, 91 deaths.

These answers, the writer considers, justify the following conclusions:

(1) Ether is more generally used than chloroform, because it is safer.

(2) The drop method of administering ether is very popular.

(3) Nitrous oxide is preferred as a preliminary to ether by nearly all who have used it under favorable circumstances.

(4) Medical colleges do not place enough importance upon anesthetics and their administration.

(5) If more ether and less chloroform were used, we certainly would have fewer deaths.

INTRAVENOUS INJECTIONS.

HAHN (*American Medicine*, Dec. '06), in an article on "Intravenous Injections, a Therapy of the Future," reviews the history of this method of administering drugs, cites the arguments for and against this method and relates his personal experiences in its use. He concludes as follows:

1. Especially fitted for intravenous treatment are "dycrasic" and dystrophic affections, disorders of metabolism, blood diseases, septic infections, cardiac insufficiency and syphilis.

2. Cinnamyllic acid, quinine, sublimate, salicylates, the derivatives of digitalis, fibrolysin, arsenic and iron, calargol and formalin are the drugs so far used.

3. The advantages of the method are: (a) avoidance of digestive and other troubles or by-effects, (b) exact dosification, (c) administration at greater intervals of time, (d) a more direct and therefore more rapid action, (e) a more energetic effect, (f) relative painlessness when compared with hypodermic injections.

4. The technique is not easy. It has to be learned and carefully observed.

5. The intravenous medication is exceedingly valuable in many conditions. It will have a certain future, yet the oral administration of drugs will always remain the standard procedure for every day.

Ordinary bakers' yeast, administered one and one-half hours after meals, in recurrent attacks of furuncles, where a glycosuric basis could be eliminated, will very often prevent subsequent appearance of these annoying lesions.—Med. Council.

SOCIETY MATTERS.

MINUTES OF NINETY-THIRD ANNUAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY, HELD IN BARRE, OCTOBER 11th AND 12th, 1906.

(Continued.)

Thursday Afternoon.

Called to order by the president at 2.15.

As delegate from the Massachusetts Medical Society, Prof. H. D. Arnold of Boston brought greetings and good wishes from his society, as follows:

"I don't want to take up any of your time except to express my pleasure at being here, and I bring you the good tidings and greetings of our Massachusetts State Medical Society."

Dr. I. S. F. Dodd of Pittsfield as second delegate, also briefly responded.

G. P. Conn of Concord, N. H., as delegate from the New Hampshire Medical Society, and as an honorary member of our society, made some felicitous remarks:

"I did not come here to talk to you. I am already too old for that. I have got past that, and if I got into reminiscences I should tire you all out. I did hope I should find someone who became a member as early as I did of this society. If I began to talk of the old times, there isn't one in the assembly who had ever heard of the men I used to know. They have gone by; they have had their day; they are now taking the long needed rest, for they rest from their labors; but I did hope I should find someone here who would know me. I am glad to see Brother Crain's head hasn't grown any more bald. That goes to show that he has got a good wife. He had a good father and grandfather who practiced medicine before him. He had all the good examples a man could possibly have, except, I don't know whether any member of his family was a minister."

REPORT OF DELEGATE TO DARTMOUTH MEDICAL COLLEGE.

In the absence of Dr. Hazelton, I was the sole representative from Vermont at the examinations of the candidates for the degree of M. D. at Dartmouth Medical College last March. I met Dr. Leith of Lancaster and Dr. Prouty of Keene, delegates from the New Hampshire society. Ten candidates, who had successfully passed the faculty examinations, were presented to us for our approval. They were all satisfactory to the delegates, and, I may say, all showed thorough training and careful preparation in the various subjects.

The delegates to this institution, as usual, were entertained in a most hospitable way by the officers of the medical school. The informal dinner in the evening at the conclusion of the exercises was a delightful affair to which wit and wisdom were contributed by all present. No delegate can fail to bring away from Hanover the pleasantest impressions of the Dartmouth Medical School.

CHARLES S. CAVERLY.

REPORT OF DELEGATE TO NEW HAMPSHIRE.

In accordance with my appointment as delegate, I attended the meeting of the New Hampshire Medical Society at Concord in May. The meeting was very well attended and the papers were of a high order. I was the only delegate present from any society, and had the kindest attention shown me in every way. I am very grateful to the Vermont Society for giving me the privilege of attending.

F. THOMAS KIDDER.

REPORT OF DELEGATE TO CONNECTICUT.

Being the delegate present at the meeting of the Connecticut State Medical Society, I submit the following report:

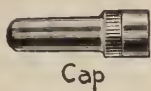
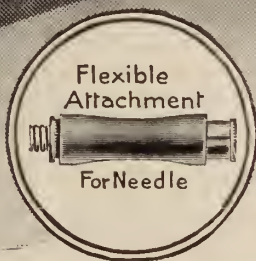
The 114th session of the Connecticut State Medical Society was held at New Haven, May 23d and 24th, 1906, opening at 2 p. m. of the 23d. Arriving in New Haven in the early afternoon of the first day, your delegate found his way to Harmonie Hall, the place of meeting. As he entered the hall the second paper was in progress, on "Immunity," by Dr. Chas. J. Bartlett, professor of pathology at the Yale Medical School, and medical examiner for the city. This was a very deep and careful presentation of the behavior, as best known, of the toxalbumens and other albumen bodies present or produced in the blood under the influence of disease. The subject of the first paper of the afternoon was "The Need of Psychopathic Wards in General Hospitals," by Dr. Allen B. Diefendorf of Middletown. The third paper was on "Aphonia," presented by Dr. Carl E. Munger of Waterbury, the discussion of which brought out chiefly the importance of distinguishing the hysterical form of this condition and the value of appropriate treatment. Dr. Charles S. Stern next presented "The Use of the Urethroscope," which was very freely illustrated by diagram and was very instructive as showing the pathological condition expected under the different types of disease in the different areas of the urethral tract. The last paper of the afternoon was on "Acne," by Dr. Bradley of Hartford. For local treatment Dr. Bradley uses very extensively an alcoholic solution of the bichloride of mercury, while for oily skins a mixture of sulphur, camphor, ether and alcohol, and for those presenting dry surfaces ammoniated mercury ointment. Considerable discussion followed the reading of this paper, especially among the skin specialists, as to the relative value of local treatment as compared to systemic treatment and diet in acne cases.

In the evening a very pleasant smoker was provided in Harmonie Hall, at which all enjoyed a social good time. Some very clever sleight of hand performing was introduced, which was followed by many happy impromptu stunts by different members called on for song or story.

The second morning session opened with a paper on "The General Treatment of Fractures," by Dr. Ansel G. Cook of Hartford, which was followed by a quite general discussion over the subject of the duration of the immobilization of the joint. This paper was followed by a paper by Dr. H. M. Lee of New London on "Further Observations on Gastric Surgery," a very good paper, bringing out the facts of the location of the lymph glands being nearer the pylorus and this the more frequent seat of malignant disease, thus arguing the importance of early radical operation. "Intestinal Anastomosis, with special reference to the Use of the Murphy Button," was another very excellent paper by Dr. L. C. Sanford of New Haven, which in Dr. Sanford's absence was read by Dr. McKnight. Following this was a paper on "The Surgical Treatment of Tubercular Peritonitis," by Dr. John Boucher of Hartford, and this was then followed by the president's address, a most earnest and masterly address on "The Influence of the Medical Profession Upon the State," presenting the duties of every physician both individually in his home community and further through the channels of law to uphold and maintain the higher ideals of the profession, to eliminate fraud and deceit and to assist the general public to a better understanding of these ideals.

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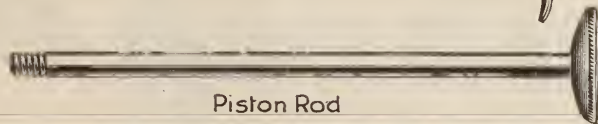
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Gold Medal (Highest Award) St. Louis Exposition, 1904

The program of the afternoon consisted of papers on the following subjects: "The Recognition and Treatment of Arterio-Sclerosis by the General Practitioner," by William Porter of Hartford; "The Home Treatment of Tuberculosis," by Dr. David R. Lyman of Wallingford; "Roentgenization in the Treatment of Cancer, with exhibition of cases," by Dr. Clarence E. Skinner of New Haven; "Lacerations of the Parturient Canal, Their Prevention and Immediate Treatment," by Dr. Norton R. Hotchkiss of New Haven; "The Relation of Typhoid Fever to Pregnancy and the Puerperium," by Dr. Otto G. Ramsey of New Haven. All of which were listened to with pleasure and profit.

A reception and a trolley ride were included in the social entertainment of the two days, which closed with an elaborate banquet at the New Haven House on Thursday evening. There were between 50 and 75 in attendance at each of the several sessions of the meeting. The meeting was in every way most enjoyable and instructive, and your delegate was most cordially entertained.

Respectfully submitted,
STANTON S. EDDY.

LAMOILLE COUNTY.

The Lamoille County Medical Society met at "The Randall," Morrisville, Jan. 9. Dr. S. E. Maynard of Burlington was present and read a very interesting and instructive paper on "The Part Played by Enterolittis in Acute Gangrenous Appendicitis, with some Points in Diagnosis." The society adopted the resolution in regard to insurance examinations recommended by the committee on insurance of the A. M. A., provided every physician in the county will sign

the pledge. The secretary was instructed to request the several newspapers of the county to refrain from mentioning the names of physicians in connection with their professional work or particular cases. There were present, Drs. G. L. Bates, W. T. Slayton of Morrisville, J. C. Morgan of Stowe, J. M. Stevens of Hyde Park, R. G. Prentiss of Johnson, G. B. Maurice of Waterville, S. E. Maynard of Burlington, E. R. Brush and S. G. Start of Cambridge.

BURLINGTON AND CHITTENDEN COUNTY.

The adjourned annual meeting of the Burlington and Chittenden County Clinical Society was held Jan. 3, with a goodly number of the members in attendance. The following are the officers elected for the ensuing year: President, Dr. Lyman Allen of Burlington; vice-president, Dr. G. B. Hulburt of Jericho; secretary and treasurer, Dr. L. P. Sprague of Burlington; executive committee, Dr. J. M. Wheeler and Dr. L. B. Morrison of Burlington, and Dr. A. S. C. Hill of Winooski; delegates to the Vermont State Society for two years, Dr. P. E. McSweeney, Dr. C. H. Beecher and Dr. F. E. Clark of Burlington and Dr. F. R. Stoddard of Shelburne. Dr. B. H. Stone read an interesting paper on "Rural Water Supplies in Relation to the Prevalence of Typhoid Fever in the County."

THERAPEUTIC NOTES.

PNEUMONIA FOLLOWING STAB-WOUND.—On Jan. 11, 1905, Mr. C——, aged 20, was stabbed in the back below the scapula, and when I saw him 20 minutes after the affray, he was suffering from profound shock. I carried out the usual operative procedures,

and the patient rallied, doing well until the night of the eighth day, when he had a severe chill, presaging pneumonia. I feared a fatal result, as the left pleural cavity contained considerable bloody serum, and immediately applied a thick dressing of Antiphlogistine 10 inches wide, from the spinal column to the median line, in the front, and kept up this treatment for three weeks, changing the dressing every morning. By this time the lung was perfectly clear, and there was no further use for the external application. The Antiphlogistine was covered by a cotton jacket and held in place with a cloth bandage. The pain was relieved by hypodermics of morphine and atropine and the heart was sustained by strychnine. Outside of a little calomel and some laxatives, there was no other treatment. I aspirated the pleural cavity and drew off the serum. In view of the complications in this case, I consider it rather remarkable that the patient made so excellent a recovery. It only confirms my own high opinion of the remedial value of Antiphlogistine.—J. A. Davis, M. D., Norman, Okla.

For a fine "smooth" article, the Listerine Dermatic Soap put out by the Lambert Pharmacal Co. is certainly one of the best. See their statements regarding the soap in this issue. A free sample for the asking; and please state that you saw their advertisement in the MONTHLY.

Timeliness of interest, aside from any other condition, lends especial importance to the announcement of the early publication of *Foods and Their Adulterations*, by Harvey W. Wiley, M. D., to be immediately followed by a companion volume, *Beverages and Their Adulterations*. Dr. Wiley is chief chemist to the United States Department of Agriculture, at Washington, and his wide researches in the interests of purity in food commodities give anything he might write on the subject an authoritativeness that is unquestioned. The fact that the new national food and drugs law becomes effective after January 1st, and that public interest in it is now at white heat, will no doubt result in quite a demand for both volumes. The books will be generously illustrated from original photographs and drawings.

BEAUTY AS A FACTOR IN DISEASE.—The New York Pharmaceutical Co., Bedford Springs, Bedford, Mass., have just issued a most interesting and instructive booklet under the above caption, which gives in detail the various methods adopted by the female sex of the many savage and semi-civilized tribes to increase their attractiveness to the male portion of their tribe or race. In some instances this so-called improvement or attractiveness is carried to that degree of regional development that locomotion is impossible. A copy of the booklet will be sent upon application.

No need to send to Boston or New York for surgical instruments or supplies when R. B. Stearns & Co. are ready, day or night, to fill your orders. Do not delay to write,—just telephone or telegraph your wants.

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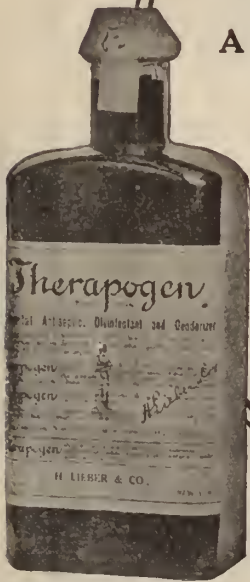
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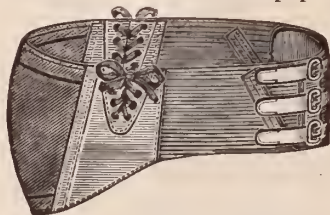
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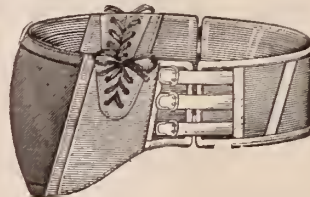
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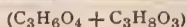
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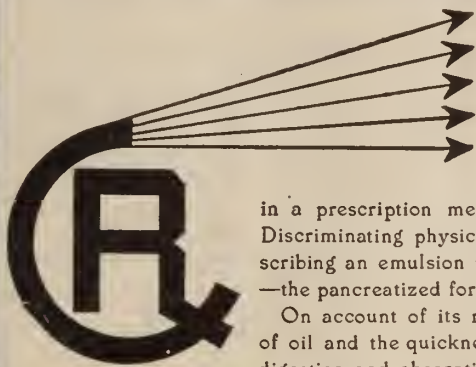
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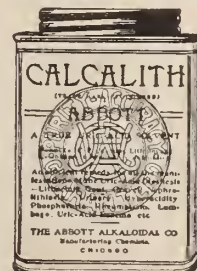
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ORIGINAL ARTICLES.

UNUSUAL AND ABNORMAL CONDITIONS OF THE APPENDIX VERMIFORMIS AS NOTED IN THE POST-MORTEM RECORDS OF THE COOK COUNTY HOSPITAL FROM JAN 1, 1893, TO NOV. 30, 1906, INCLUSIVE.

By Aime Paul Heineck, Chicago, Ill., Professor of Surgery, Dearborn Medical College; Adjunct Professor of Surgery, University of Illinois, Surgeon to Samaritan Hospital, Surgeon to the Cook County Hospital, Etc.

Anatomical, pathological and clinical data concerning the appendix vermiformis are always of a practical interest to the medical practitioner. The frequency of pathological conditions in this organ, be they of a degenerative, of an inflammatory or of a neoplastic nature, is responsible for the many studies which have appeared on the appendix vermiformis.

There are normal conditions, locations, sizes and general relations of the appendix. Any deviation from the normal we consider abnormal. How can the nature and the frequency of these abnormalities be determined, be they abnormalities in location, in size, in general relation, in anatomical integrity? By the comparison and the discussion of observations made in the dissecting room, on the operating table and in the post-mortem room. This paper is based exclusively on observations made in the latter. The post-mortem records of 3750 consecutive and unselected autopsies, held in the Cook County Hospital, between January 1, 1893, and November 30, 1906, inclusive, were examined. These post-mortems were held on patients who died in the institution. An autopsy in this institution can only be held in the absence of protest from friends or relatives. No special space in the records was allowed to the appendix until the year 1896. Before that time the nature, the frequency and importance of inflammations of

this organ were not as fully understood and as fully appreciated as they are now.

The frequency of adhesion of the appendix vermiformis to neighboring structures and organs impressed us. The appendix vermiformis was found adherent to neighboring structures or viscera 533 times. It was not possible to determine accurately in what proportion of cases the condition of "adherent appendix" was due to a previous inflammatory process of the appendix, or to a previous inflammatory process extending to the appendix from adjacent structures, in which it had originated, or in what proportion they were of embryological origin. These adhesions are of interest to the clinician, to the pathologist and to the surgeon. They are frequently the cause of obscure (obscure as to correct interpretation) abdominal pains (adhesions to colon, to small intestines, to abdominal wall); of digestive disturbances (adhesion to stomach, liver, gall bladder). They may be the cause of vesical, of rectal tenesmus (adhesions to the urinary bladder, to the sigmoid flexure of the colon, to the rectum). In some cases the appendix was adherent by its proximal end, in others by its distal end, and in others through its entire length.

Adhesions can lead to kinking, to twisting, to obstruction of the appendix, to interference with its circulation, to impairment of its peristaltic action; can be the means of extension of an inflammatory process from the appendix to the structure or organ to which the appendix is adherent; can make the appendix serve the office of a band over which a loop of intestines may become kinked, or beneath which a coil of gut may become looped. In either case intestinal obstruction or strangulation results. The appendix may lie concealed in a mass of adhesions.

In 145 cases of chronic adhesive appendicitis examined and analyzed at the Boston City Hospital, 118 showed no evidence of any abdominal condition to which adhesion could be referred, other than a prior inflammation of the appendix. Hence, they can be considered

cases of primary chronic adhesive appendicitis. In 27 cases other sources for the adhesions could be ascertained (secondary chronic adhesive appendicitis), as salpingitis, hydrosalpinx, myoma of uterus; in three cases, carcinoma of uterus, with other pelvic structures; in three cases, disease of the gall bladder; in two tubercular peritonitis, etc.

These adhesions always prolong the operative intervention and may lead the surgeon to completely modify his technique in appendectomy. For instance, in those cases in which the appendix is so closely adherent to the wall of the cecum that it appears almost a part of it, and cannot with safety be separated from it. In such cases, the real peritoneal coat of the appendix may be incised lengthwise, the appendix shelled out of its peritoneal covering and ligated at its junction with the cecum. The wound in the peritoneal coat of the appendix is then sutured.

The analysis of 533 cases in which the appendix was adherent shows the following:

Appendix adherent to cecum in 366 cases.

Appendix adherent to psoas muscle in 52 cases.

Appendix adherent to hernial sac in 5 cases.

Appendix adherent to omentum in 16 cases.

Appendix adherent to small intestines in 22 cases.

Appendix adherent to ascending colon in 14 cases.

Appendix adherent to parietal wall in 18 cases.

Appendix adherent to brim of pelvis in 9 cases.

Appendix adherent to rectum in 2 cases.

Appendix adherent to sigmoid flexure in 1 case.

Appendix adherent to stomach in 1 case.

Appendix adherent to liver in 2 cases.

Appendix adherent to urinary bladder in 1 case.

Appendix adherent to anterior parietal peritoneum wall forming a band, 2 cases.

Appendix adherent to mesentery in several cases.

Appendix adherent to mesocolon in several cases.

In the cases in which it was adherent to the psoas muscle, in some the course of the appendix was parallel to the long axis of the psoas muscle; in some, transverse to it; in others, oblique.

In cases of adherent appendix not included in the above, the seat of adhesion was either not mentioned or the appendix was adherent to more than one structure.

Cunningham says: "The following locations of the appendix vermiformis have been considered normal by one or more observers: (1) Over the brim, into the pelvis; (2) upwards behind the cecum; (3) upwards and inwards towards the spleen." This latter we did not find frequent. In these 3750 cases it is reported that the appendix was located partially or wholly in the true pelvis 170 times. This fact shows the utility of rectal and vaginal examinations in suspected cases of appendicitis; it explains the frequency of pelvic abscesses in suppurative inflammations of the appendix vermiformis, and the rupturing of some of these abscesses into the uterus, into the rectum, into the urinary bladder, etc.

The appendix vermiformis was found in a hernial sac five times, cases 6182, 6924, 5245, 5344, and in case G. B., June 26, 1896. In each of these cases, we were dealing with a right inguinal hernia. In one, the appendix was the only viscus present. In two others, a part of the cecum was present in the hernial sac with the appendix, and in the fourth, small intestines and the appendix vermiformis formed the contents of the hernial sac. All these hernia were irreducible, owing to the presence of adhesions. In one of these cases (5245) many concretions were found in the appendix. In one case the appendix though otherwise normal, extended to the liver.

The appendix was retroperitoneal in 17 cases. A retroperitoneal appendix is liable, if it becomes inflamed, to cause a retrocecal or retrocolic abscess. Retroperitoneal vermiform appendices play an important part in the causation of supphrenic abscesses. If the inflamed appendix be beneath the iliac or pelvic peritoneum, pus may burrow along the external iliac vessels and the resulting abscess point in the thigh beneath Poupart's ligament.

Kelly and Hurdon say: "The question whether the appendix is an intraperitoneal or extraperitoneal organ is chiefly decided by the position it assumes in relation to the cecum or colon, whether it is downward or upward; or, in more correct expression, early fusion between the colon and the posterior abdominal wall is apt to produce an ascending or retro-

peritoneal appendix, while late fusion brings about a pendant intraperitoneal appendix."

In case 5259, patient six months old, the appendix was found in the ascending colon. The lower end of the ileum had passed upward through the ileocecal valve with the cecum into the colon. The appendix at its attached end had been inverted with the bowel. The half below the constriction was gangrenous.

Case 6432. In this case the appendix was herniated through its own mesentery. It was not the seat of adhesions. At times in the meso-appendix may be found an opening in which a coil of small intestine has been known to become strangulated.

In case 5750, a case of gangrenous appendicitis, the cecal end of the appendix opened into a large abscess cavity in the liver. The opening in the appendix corresponded to the site of the liver abscess.

In twenty-four cases the appendix was partially or completely obliterated. In several of these cases the appendix had been converted into a band of fibrous tissue. It is said that total obliteration of the canal insures perfect immunity from further attacks of appendicitis, but that if any portion remains pervious there is an increased disposition to other attacks. In ten of these cases the obliteration was due to an inflammation, in the others it was not determined whether the obliteration was inflammatory or involutionary in nature. In one case, the constriction was proximal to a concretion; in two cases, the appendix contained mucoid material distal to the constriction; in one the end distal to the constriction contained pus. The constriction may involve any portion of the canal.

The appendix was found kinked in twenty cases. Some of these bends and kinks were due to inflammatory adhesions; some were due to shortened meso-appendix. In ten of these cases the kinking was inflammatory in origin; in the others, reports are too meager to state the causes. Constrictions of the appendix were noticed in nine cases. They were all due to previous inflammation of the organ.

In these reports no case of supernumerary appendix is recorded. No case of absence of the appendix not attributable to appendectomy or sloughing was seen. Congenital absence of the appendix has been recorded by Byron Robinson, (once) Fawcett, (twice) Swan, (twice) Ferguson, Schridde, Dillard and Dorrance,

once. The absence, due to operation of the appendix was noted twenty-one times. The fetal type of appendix, in which the appendix is the narrow inferior end of the cecum, the apex of the cone being directly continued into the appendix was present in about 1 per cent. of the cases.

The size of the appendix is more variable than its position. Kelly and Hurdon agree with Ribbert, Berry and others in placing the average length of the appendix at about 8.3 cm., or between three and three and one-half inches. Schlange, in von Bergmann's Practice of Surgery, gives the average length as 9.2 cm., equal to three and one-half inches.

In case 6656, the length of the appendix was $\frac{1}{2}$ cm.

In case 6791, the length of the appendix was 3 cm.

In case 7073, the length of the appendix was 3 cm.

In case 6107, the length of the appendix

In case 5616, the appendix was normal, but was nine inches in length.

In several cases, the appendix was 2 cm. in length.

In one case, (patient, Isaac Williams, posted April 26, 1895), the appendix is recorded as having been ten inches long. Long appendices are frequently bent upon themselves or drawn up by the shortness of their mesentery into various bizarre forms, figure-of-eight, or spiral.

Foreign bodies were found in the appendix vermiformis as follows:

Grape seed, one case.

Fish bone, $1\frac{1}{2}$ inches in length), covered with concretions, one case.

Enteroliths, thirty cases.

By enteroliths, we understand fecal material which has undergone desiccation. The ordinary or normal appendix may contain fecal material similar to that found in the adjacent large intestine. Bryant found fecal matter in 70 per cent. of his adult specimens. In some of the cases reported above, the enteroliths were single, in others multiple. In case 5030 there were two large and several small concretions.

In these 3750 autopsies the appendix vermiformis was reported to have been the seat of tubercular lesions ten times: cases 3507, 6701, 5275, 5421, 6499, 6504, 6779, 6225, 5104,

5982. A fact worthy of note is that in each and every one of these ten cases the tubercular lesions in the appendix coexisted with tubercular lesions elsewhere in the organism; that in all of these cases tuberculosis pneumonitis of one or other variety was invariably present. Not one of these cases of tuberculous appendicitis was primary. These were all secondary, either by continuity of tissue, as extension from tuberculosis of neighboring coils of intestine, or by vascular transplantation. We are forced to state that the tuberculosis of the appendix vermiformis is but exceptionally primary and isolated. In four of these cases the organ was free, was non-adherent; in six it was adherent to some neighboring structure. In some of these cases the tuberculous process in the appendix vermiformis had led to the formation of caseous areas; in others, to ulcer formation; in others, simply to the formation of tuberculous granulation tissue. In some the process was limited to the internal coats; in others to the external coats. In others it involved all the coats. In all these cases the tuberculous appendicitis was not productive of symptoms sufficiently marked to lead to its diagnosis during life.

Twice (cases 5305, 5912) the appendix was the seat of typhoidal disease. In both of these cases typhoidal lesions in other parts of the abdomen coexisted (intestines, mesenteric glands, spleen). In case 5305 there were submucous hemorrhages; in case 5912 ulcers were present.

In case 5272 there was a cavity between the folds of the meso-appendix communicating with the lumen of the appendix, and containing thick pus.

The appendix was found to be the seat of acute inflammation (non-suppurative in character, that had not been pus producing) forty-one times. In six cases pus was found in the cavity of the appendix, that is, in six cases we had an empyema of the appendix.

The appendix vermiformis was found to be the seat of neoplastic disease three times (cases 6200, 6178, 6002). In each of these cases the neoplasm was a carcinoma. In each of these cases the appendix had been involved secondarily by the neoplastic process. In each the primary tumor was in the stomach. Benign neoplastic or sarcomatous change in the appendix was not found in any case. In two of the cases reported the tumor was apparently

secondary by vascular transplantation; in one secondary by extension by contiguity. (Appendix was adherent to stomach by tumor mass).

The following shows the great improvement in the understanding of indications for operation in appendicitis, and in the performance of the various operations for this condition that has taken place during the last decade.

Between the years 1893 and 1896 there came to the autopsy table at the Cook County Hospital nineteen cases, which had been operated upon for appendicitis, and in which suppurative peritonitis was present; while between the years 1896 and 1906 inclusive, there only came to the autopsy table seven such cases.

The operation performed in those days is best understood and appreciated by the following, taken from the post-mortem records:

Case of L. Jackson, March 20, 1895. In right iliac region, wound is found 7 cm. long, partly closed by sutures. Through this incision protrudes a loop of intestine and a gauze drain; appendix was found adherent to psoas, and had a perforation at lower third. (Operation for appendicitis).

Case of L. Jones, examined February 10, 1895. In abdominal wall in median line an incision of about four inches in length was found packed with iodoform gauze. Omentum and intestines found matted together. Appendix found bound down to psoas and red in appearance. Constriction about three-fourths cm. from tip. (General suppurative peritonitis).

Case of J. G. Simons, February 4, 1893. Appendix, colon and omentum found adherent to right iliac region. Appendix surrounded by granulating tissue. Looks, on separating adhesions, like a large ulcerating cavity.

Case of Joseph Kubat, April 7, 1895. In right lower quadrant eight-inch scar is found; omentum adherent to peritoneum under scar. Appendix present and adherent to abdominal wall.

These post-mortem records affirm the following facts concerning the appendix vermiformis:

1. That it is almost always an intraperitoneal organ; exceptionally, it is extraperitoneal, and then, usually, only partly so.
2. That it has been found in nearly every portion of the abdominal or pelvic cavities.

3. That it may form the contents or part of the contents of a hernial sac.

4. That its presence in a hernial sac does not render it immune from the lesions to which it is subject when normally located.

5. That it may be adherent to any intraperitoneal organ or structure.

6. That appendiceal adhesions may or may not be associated with symptoms.

7. That it may be adherent to some extraperitoneal structures, kidney, retrocolic cellular tissues, etc.

8. That pathological conditions have been found which seem to indicate that inflammations can extend from it to neighboring organs and structures to which it is adherent, and vice versa.

9. That in the diagnosing of obscure abdominal and pelvic conditions, the probability of a previous or of an existing appendicitis must be considered.

10. That pus may be present within the cavity of the appendix, within the walls of the appendix, or the condition of peri-appendiceal abscess may occur.

11. That inflammations of the appendix may terminate in resolution in adhesion formation, in obliteration of the appendix (partial or complete), in interstitial thickening, in gangrene, ulceration and perforation of the organ; may terminate in suppuration.

12. That one attack of appendicitis predisposes to other attacks, until complete obliteration of the lumen of the appendix has taken place.

13. That the condition of supernumerary appendix does not occur.

14. That congenital absence of the appendix, if it occurs, is so infrequent as to be ignored, from a clinical standpoint.

15. That the appendix may vary in length from $\frac{1}{2}$ cm. to 26 cm.

16. That the lodgment of foreign bodies in the lumen of the appendix is an infrequent occurrence, only two cases, excluding enteroliths, having been observed in 3750 cases.

17. That neoplastic disease of the appendix is uncommon. We are inclined to think that neoplasms of the appendix are almost always secondary, either by continuity or contiguity of tissue, or by vascular transplantation. We have never met with a primary case. Some primary cases, however, have been reported.

18. That this organ may be the seat of

lesions of the same nature as can occur in other portions of the alimentary canal, viz: typhoidal, tubercular, actinomycotic, dysenteric, etc.

19. That tuberculous appendicitis is almost invariably secondary.

20. That the lessened frequency during the last decade of diffuse suppurative peritonitis following operations for appendicitis is due, first, to more exact diagnosis; second, to earlier operation; third, to excision of the appendix and of its mesentery in cases not complicated by periappendiceal abscess; fourth, to better and more perfect technique on part of operator.

21. To limiting the surgical intervention in cases of periappendiceal abscess to incision and evacuation and drainage of the pus cavity, if the appendix be not easily accessible. If the appendix be easily accessible, it should be removed at the primary operation.

A CASE OF PERFORATIVE APPENDICITIS.

By S. A. Russlow, M. D., Randolph, Vt.

Mr. M., occupation, clergyman, age 33, health usually good. Had had an attack of some form of colic five years previous. Physician at the time did not make a differential diagnosis. The winter previous to his last illness he suffered from some form of dyspepsia but had had no pain or tenderness over any part of bowels which was noticeable. April 2, '01, he complained of pain in right side. He took a stage ride of three and a half miles that day, then by train to a town 14 miles distant. By the time he reached his destination pain was so severe he was obliged to lie down for a while. This was in the afternoon. That evening he preached with very little difficulty but on reaching his stopping place for the night pain was so severe in right side he was obliged to call in a physician, an able man, who diagnosed the case as one of pleurisy and gave hypodermic of morphine. The following morning Mr. M. returned home but was taken so violently ill that again a physician was summoned. He being an elderly man did not wish to take the responsibility of the case and I was called.

Symptoms at this time, moderate fever 100° or 101° , persistent vomiting, pain along course of right ureter, retracted testicle and pain

shooting down penis and inside of right leg. There was no decided local tenderness and it was apparently a case of renal colic. This was April 4th. April 5th, urine bloody, and some small clots present, still complained of pain in bowels and some tenderness over whole abdomen especially in left iliac region. April 6th pain more intense, pulse about 125 and temperature 100°, abdomen retracted, patient relieved only by free use of morphine. He was terribly nauseated and vomiting.

April 7th, patient's condition very serious, small rapid pulse, great prostration. Died the following night. Autopsy revealed an appendix 4½ inches long, coiling back under ileum, surrounded by a mass of adhesions that involved right ureter, rupture of appendix at apex and general peritonitis.

You will observe that at no time was the tenderness more marked at McBurney's point than over any other part of abdomen, no chill and at no time a temperature above 101°.

AN UNUSUAL ACCIDENT OR COMPLICATION OF LABOR.

November 17th, '02, was called to attend Mrs. J., age 37, a multipara. Two previous labors had been normal. General health good, with good family history. Upon examination found head presenting, left occipital anterior, pains unusually severe, patient in good condition.

At the end of four hours, head rotated and was well down upon the perineum. At this time she complained of feeling very faint after a severe pain and her condition grew more serious after each succeeding pain. I decided to deliver at once with forceps. Gave hypodermic of strychnia, 1-20 grain, applied forceps and delivered her with very little effort of a child, male, weighing 10 lbs. Condition improved at once. Placenta expelled and a hypodermic of fluid ext. of ergot given. Uterine contraction good. Asked nurse to see that the uterus kept contracted while I tried to excite respiration in the child which was still-born. In ten or fifteen minutes from this time patient complained again of feeling faint. Found uterus partly dilated and a slight hemorrhage. I emptied uterus of clots and contraction was again perfect. Patient still faint and a hot saline solution was given by bowel, foot of bed elevated and limbs bandaged. Solution retained for about twenty minutes when part of

it was passed off and another was given, which was retained about same length of time. When it came away it was followed by a flow of blood from the bowel which showed that intestinal hemorrhage had taken place. Patient grew rapidly worse, until she had the appearance of being completely exsanguinated and died in about one and a half hours after completion of labor.

An autopsy was refused so the exact pathological condition could not be determined. So far I have been unable to find the history of this complication in pregnancy.

ON THE TREATMENT OF A PATIENT SUFFERING FROM PNEUMONIA.

By J. M. French, M. D., Milford, Mass.

We ought to treat pneumonia, not by a universal rule, but according to the symptoms in each individual case. Better still, we should treat, not the pneumonia, but the patient suffering from pneumonia, according to the symptoms which he presents.

The prominent symptoms may be classed under four heads, and the treatment of each considered separately. If some of the symptoms do not make their appearance in any individual case, then no treatment is needed therefor. Do not give a drug without a definite indication for its use. Better expectant treatment than over-drugging or shotgun prescriptions. But on the other hand, a knowledge of the natural history of the disease will enable the physician to anticipate the more constant and important of these symptoms, and often, by taking the proper precautions, to prevent their appearance, or moderate their force when they do appear.

(1) The Digestive Organs.—If the patient has a coated tongue at the outset, with an inactive liver, an overloaded alimentary canal, and a sluggish condition of all the secretions, then the first thing to do is to get him cleared out, and to start up the secretions generally. If we neglect this, we shall have a case of auto-toxemia added to one of pneumonia.

Give such a patient a triplex pill (composed of 2 grains of aloes, 1 of blue mass, and ¼ grain of podophyllin) at night, and if it has not had the desired effect in the morning, follow with a heaping teaspoonful of saline laxative in half a cup of hot water, repeated every hour until

effect. Or you may give calomel and podophyllin, 1-6 grain of each every half hour until a grain has been taken, and follow in two hours with the saline laxative, repeated as before. Always remember that the only safe rule for dosage is "dose enough."

An important reason for this procedure is suggested by Dr. Woods Hutchinson, in his important paper on the liver in the November *Practitioner*. He calls attention to the remarkable fact that death in pneumonia, as in nearly all the infectious diseases, is heralded by the train of symptoms to which the name of uremia is usually given, but which he shows to be really due to the failure of the liver to cope with the flood of toxic matter which is poured upon it for elimination. Hence the supreme importance of keeping the alimentary canal cleared, so as to relieve the liver of that portion of its duties.

When the alimentary canal has been thoroughly cleaned out, give five grains of the combined sulphocarbolates every four hours, or oftener if necessary, to keep the intestine reasonably clean and antiseptic. It is desirable to have at least one free movement of the bowels each day, and for this purpose there is nothing superior to the saline laxative. "Clean out, clean up, and keep clean," is a good motto in this disease as in many others.

Do not worry about feeding these cases, for the first day or two at least. A little judicious starvation at the beginning of the attack will do them good. But when the time comes that they can eat and digest, then feed them as they may need. The nature of their food should depend upon their powers of digestion, and not upon the name of the disease from which they are suffering. Milk is not always the best diet for a sick person. Sometimes beefsteak is better.

(2) The Fever and the Heart.—In some cases, the fever runs high from the first, and the pulse, in addition to being rapid, is full, strong, and bounding. These are the sthenic cases, and with proper treatment ought to recover in nearly every instance. Give these patients 1-134 grain of veratrine, in solution, every fifteen minutes or half hour, according to the height of the fever, until the beneficial effect is seen in the lessening of the fever, the pulse becoming softer and slower, and perspiration setting in. Then lessen the fre-

quency of the dose, giving it every hour or two as long as the fever continues.

If on the other hand the pulse while frequent is small, hard and wiry, with a temperature probably somewhat lower than in the former case, these symptoms denoting the asthenic type, the remedy is amorphous aconitine, given in the same dose and by the same rule as the veratrine.

Do not use the coal-tar products in any case to bring down the fever. They will do it, but there is danger that they will bring down the heart with it.

If this treatment is applied promptly and boldly, a considerable proportion of the cases will be aborted in the first stage. To be sure, if by your treatment you bring about this result, the authorities and your consultant will tell you that it was not pneumonia at all, but only a case of simple congestion. Don't quarrel with them on that point. Perhaps they are right. The main thing is, that your patient recovers, and does so without a long sickness. I have been through this experience in my own person, and I know how much it is to be preferred to a long siege of pneumonia. Since then, in my practice, I have called my consultant early, and got him to make his diagnosis at the outset. Then he could not well go back on it when the patient was out of his fever in three days. One such case I recall, which I afterwards reported in our local medical society. "But how do you know he would have had pneumonia anyway?" asked a cautious critic. "Would have had pneumonia," snapped out my neighbor who had seen the case, "*he did have pneumonia*, for I saw him." That time I won out.

It is worth while to remember that a persistently low temperature in pneumonia is a symptom of the gravest import, indicating a low vitality and a lack of reparative force. It has been found that those cases have the lowest mortality, in which the maximum temperature is between 103 and 105.

A little later in the course of the disease, as soon as the first symptoms of heart weakness appear, or preferably earlier than this, so as to guard against and prevent it as far as possible digitalin and strychnine should be added to the aconitine or veratrine, in order to support the heart and tone up the nervous system in general. The constricting effect of the

digitalin upon the pulse is overbalanced by the relaxing effect of the aconitine, while in their febrifuge action they are synergistic. A good combination in asthenic cases is the Dosimetric Trinity granule, much used by the alkaloidists. This contains 1-134 grain of amorphous aconitine, 1-67 grain of digitalin Germanic, and 1-134 grain of strychnine arsenate. For the purely sthenic cases, or in the sthenic stage of the disease, a better combination is that known as the defervescent compound, which contains 1-134 grain each of aconitine and veratrine, with 1-67 grain of digitalin. Each of these is administered by the same general rule, one every half hour or one or two hours, according to the nature of the case. When the fever subsides, and the heart remains weak, give the digitalin and strychnine without the aconitine or veratrine.

Another indication for the use of veratrine is its power of eliminating the waste products of the system. Along with these, it is probable that the pneumotoxin itself is eliminated.

In some cases the first symptoms of the disease are those which denote a shock to the heart, and these require early treatment. In others, the heart symptoms come on later. The face is cyanosed, the arterial tension much increased, and the heart seriously overburdened. Here is the danger point. Save the heart, and the patient will recover. In olden times this was regarded as the indication for bleeding, and there are not wanting good men to-day who believe it was the best treatment that could have been given in this condition, and would be to-day. But the pendulum has swung the other way and we now "bleed a man into his own vessels" by relaxing the capillaries with aconitine, veratrine, and nitroglycerine, while at the same time we secure the tonic effect of strychnine and digitalin. Give the nitroglycerine in 1-250 grain doses, and you will secure all the beneficial effects, and avoid the unpleasant ones. This dose can be repeated every ten to thirty minutes until sufficient effect. It is, however, an emergency remedy pure and simple, and should not be given continuously.

In extremely asthenic cases, where the heart is weak from the first, the pulse feeble, and the patient aged or debilitated, it is well not to give either aconitine or veratrine, but to rely upon digitalin from the first.

In giving strychnine and digitalin, either alone or in combination, while it is always preferable to give them in solution, yet in some patients the extremely bitter taste constitutes so strong an objection that it is better to administer them in the granule form, and follow each dose with a drink of water.

(3) The Lungs and Respiration.—The pneumonia patient has a crippled lung. His blood has to be purified under difficulties. He must do all of his breathing in only a part of his normal lung tissue. Hence the urgent necessity that he should have plenty of fresh air. This is the basis of the much-vaunted fresh-air cure for pneumonia. The idea is not a new one, however. The air should be warm and not cold. Cold air is irritating and injurious to an inflamed lung. Put the patient in a large room, not in a corner nor at the side of the room, but near the middle, where he can have a free circulation of air on all sides of him. Do not be afraid of fresh air.

The respiration is usually rapid, but this does not require special treatment, except to relieve any painful conditions on which excessive frequency may depend.

The cough may be troublesome from first to last, or the patient may pass through the whole course of the disease with very little coughing. In croupous pneumonia, there is usually not much expectoration, the exudate being mostly absorbed. Do not give expectorants as a routine measure, but only when required for the comfort of the patient. If the cough is harsh and tight, emetin is the remedy, grain 1-67 in solution every fifteen minutes or half hour until relief or slight nausea. If the sputum is thick and viscid, and raised with difficulty, apomorphine is the indicated remedy. If the cough is mostly from irritation, a few doses of codeine, grain 1-6, will usually relieve.

As a respiratory antiseptic, and indirectly as an expectorant, excellent results may be secured from creosote or some of its derivatives. My own preference is for thiocol, which is chemically a guaiacol-sulphonate of potassium, and is odorless, tasteless, and can be given in any desired dose without disturbing the stomach, yet secures all the beneficial results of creosote or guaiacol. Of this I give to an adult ten grains every three or four hours. Its usual effect is to shorten the disease and lessen the severity of the symptoms.

(4) The Nervous System.—Pain, restlessness, distress, and insomnia, are the chief symptoms referable to the nervous system. They vary greatly in intensity in different persons, even though the severity of the disease, as measured by the prognosis, may be very much the same in all of them. The chief reasons for this difference are the sensitiveness of the nervous system in the particular individual, and the organs involved in the disease. When the inflammation is limited to the central portion of the lung, there is usually little pain, though the fever may be high. But if the outside of the lung is the part involved, then pleurisy constitutes an important part of the disease, and there is much difficulty of breathing and pain in the side. If these symptoms are severe, it may be advisable to give at an early stage of the disease, a small hypodermic of morphine and atropine. Later on this should be avoided, save as a means of securing euthanasia. Codeine is preferable internally, if the pain is not too severe. Besides these, glonoin (nitroglycerine) for shortness of breath or sense of oppression, and expectorants as already indicated for severe coughing, will give much relief. In the late stages of fatal cases, morphine, alcoholics, and even chloroform, may be required to produce euthanasia.

Never forget that the physician's greatest skill is shown, not in meeting and overcoming serious symptoms and dangerous complications, but in so conducting the case from the outset as to avoid their appearance.

URINARY DIAGNOSIS IN NEPHRITIS.

By Geo. H. Parmenter, M. D., Montpelier, Vt.

In speaking of urinary diagnosis in nephritis it is with the intention of calling to mind well known facts, rather than teaching new ones; and in using urinalysis as an aid to, rather than a substitute for other diagnostic methods. To gain satisfactory results we should insist upon a specimen from the mixed urine of 24 hours, and should know the total number of ounces passed during that time.

The average normal quantity is variously stated as from 30 to 40 ounces for women and 35 to 50 ounces for men. This of course varies with body weight, habits of eating and drinking, muscular exercise, etc.

It is probably safe to say that more than 50 ounces or less than 25 to 20 ounces, if persistent, is abnormal. The color may aid in diagnosis, as for instance the appearance of blood pigment or bile.

A persistent froth may be due to large amounts of albumin, bile, sugar, pus or blood. The specific gravity is normally between 1.015 and 1.022, depending upon the amount of solid material in solution, not in suspension. The total solids excreted give us a reliable index of renal insufficiency.

This may be obtained approximately by multiplying the last two figures of the specific gravity by the number of ounces voided in 24 hours and increasing this product by 10 per cent. of itself.

This is usually stated as about 100 gr. The formation of deposits (urates, phosphates, uric acid, etc.) depends more upon the reaction of the urine, than the amount of such constituent. A few simple tests will distinguish between these substances. Urates disappear with heat, phosphates with acetic acid, uric acid crystals are often visible to the unaided eye. Pus becomes viscid with the addition of a strong alkali, while a sediment not removed by filtering is probably bacterial.

Another reliable index of renal insufficiency is the amount of urea, the product of tissue waste. In addition to the various forms of nephritis it should be remembered that there is a marked diminution of urea in cancer and cirrhosis of the liver, rheumatism and the anemias.

Of the abnormal elements of urine, perhaps albumin claims the most attention. We quite often meet the term physiological albuminuria. At any rate we may find a renal albuminuria without definite organic lesion, which may be termed functional if not physiological. Of course albumin alone must not be taken as proof of Bright's disease, for it may be due to pus or blood from any portion of the urinary tract. We have the albuminuria of the acute fever, pernicious anemia, jaundice, diabetes, lead and mercury poisoning and ether or chloroform anesthesia, in the latter cases being due to irritating substances in the blood. Even the rise of blood pressure in the renal veins, from whatever cause may produce a slight albuminuria.

I shall attempt to discuss but three forms of nephritis in this paper, and those very briefly.

In acute nephritis, our task is comparatively simple. If in addition to the well known symptoms of this condition, we find a high colored bloody or smoky urine, diminished in quantity or even approaching total suppression we are quite certain of the diagnosis. We may expect a high specific gravity, but with the total solids much diminished, the reaction acid and a heavy sediment. Perhaps the most striking deviation from the normal is the large quantity of albumin. The urine may even become solid with the application of heat and acid. This is ordinarily one-half or one per cent. by weight. Another important diagnostic sign is the quantity of urea, as to this more than any other point except the quantity of urine, we must look for signs of impending uremia, so common in acute nephritis. The percentage of urea may be above the normal, but the 24 hour quantity will be found markedly diminished, one-half, one-fourth or one-sixth of the normal.

If in addition to this, we examine the sediment microscopically, we shall find casts in large numbers, hyaline, epithelial, blood and dark granular, blood cells both red and white, renal epithelium and probably uric acid crystals.

From this condition the urine may gradually return to normal, or if the condition progresses may approach the type of chronic nephritis.

With care, the diagnosis between the hyperemic conditions of the kidney and acute inflammation should not be difficult, although the dividing line between a severe active hyperemia and acute inflammation is not always clear. We are more likely to fail to distinguish between a primary acute nephritis and an acute exacerbation in the course of a chronic process.

Should the condition continue we may have a chronic diffuse nephritis. In this event we may expect a urine somewhat diminished in quantity, of low specific gravity and varying in color from yellow to brown, reaction acid, solids low. The quantity varies with the amount of dropsy. Albumin will be found in comparatively large quantity; sometimes larger than in any other kidney lesion. Blood may be absent, or present in increasing quantity as the condition approaches chronic hemorrhagic nephritis. Both albumen and blood are likely to grow less as the inflammation becomes more chronic and secondary atrophy ensues. Urea is

diminished both in per cent and total 24 hour quantity, though uremia is much less common in this form of nephritis than in acute nephritis or primary contracted kidney.

It is in this condition that the microscope reveals the fatty degeneration of the renal epithelium. We find many casts, broad hyaline and granular, fatty, epithelial and in severe cases the waxy cast. To differentiate the bloody urines of other conditions from those of nephritis, it is only necessary to note the normal solids and urea or to demonstrate the absence of casts.

The urinary picture in secondary contraction after chronic Diffuse Nephritis is apparent from the name. We find the quantity of urine increased, but pale in color and of low specific gravity. Albumen diminished, urea and solids below normal. No blood or pus, fewer casts with the broad hyaline and waxy varieties predominating.

It is in chronic interstitial nephritis, or primary contracted kidney that urinalysis becomes of supreme importance as an aid to early diagnosis. The extremely slow insidious development of this condition renders it particularly liable to be overlooked by both patient and physician until perhaps accidentally discovered in the routine examination of urine in other diseases or by the life insurance examiner or ophthalmologist. When finally the disease does give rise to noteworthy symptoms, the patient may consult his physician for the relief of diabetes, owing to the increased flow of urine, or perhaps for dimness of vision or any one of the many manifestations of uremia. The fact that dropsy is slight or absent, so long as the heart is competent, and the urine without the ordinary visible signs of nephritis renders the diagnosis more difficult. If we examine the urine of 24 hours we shall find it pale in color, clear or with very little sediment, increased in quantity 60, 80 or 100 ounce. The specific gravity may be as low as 1.005 and all solid elements including urea diminished. The amount of albumen is comparatively small and may be very slight or even absent at times, but continued examination will show it present in the majority of cases.

The diagnosis may hinge upon the demonstration of casts in the sediment. They are usually few in number and of the narrow hyaline or pale granular varieties, with an occasional epithelial or in the very late stages

the waxy cast. Careful search will almost always disclose a few casts and persistence of casts may be considered definite evidence of chronic Bright's disease. Blood is absent in uncomplicated cases, and the epithelial elements may not differ markedly from those of normal urine.

THERAPEUTICS OF THE ALKALOID SULPHATE QUININE.*

By J. P. Newton, M. D., Benson, Vt.

About a month ago I was asked by our Secretary if I would write a paper for our January meeting. Assuming it the duty of every man to respond when called upon I replied in the affirmative and pronounced the above my subject, as general Therapeutics or Therapeutics in particular have been discussed but little in the deliberations of our Society heretofore. I have taken the alkaloid up apropos my own experience.

Sulphate quinine as a therapeutic agent has been long and favorably known, its virtues have been praised and its powers demonstrated, not from Hippocrates but from Brettaneau it has entered into our materia medica. Our fathers were wont to think it an admirable tonic administered in their safe, if not good old way, and a grain or two at intervals of four hours or more, was as boldly and heroically as many of them dared to use it, and even this must be done in the period of apyrexia. As an antiperiodic it was long well known and successfully used before our German friends began to use it generally as an antipyretic in which sphere it seems now to be most potent and very largely used. In my own hands I have found it more valuable, I think, to reduce temperature than for anything else. I would admit its superiority over all other therapeutic agents as an antiperiodic, but there are other antiperiodics and even if there were not, one can better wait for periodical fevers to subside spontaneously, than for continuous fever to do so. Hence the great value of quinine as an antipyretic or a reducer of heat. I will make brief reference to a few cases in my practice that evince the potency of the remedy.

This is my first case of using it heroically as an antipyretic. Mr. C., a young man of twenty, was ill with typhoid fever. His symptoms had grown steadily worse from the first to about the tenth day. At this date his pulse was 120, temperature 103 2-5, low muttering delirium, profuse perspiration, etc. Gave him 40 grains of sulphate quinine at 11 a. m. The next day only a slight diminution of temperature and the

next day symptoms being about the same, repeated the 40 grains. There was a marked diminution in 24 hours and in 48 hours natural temperature was resumed and my patient made a rapid convalescence.

Case second. Mr. B., a man seventy-two years old, ill with typhoid fever. Symptoms had grown steadily worse from first to twelfth day, until patient was comatose, with now and then low muttering with every indication of impending death. Called about 11 a. m. on the twelfth day, found my patient with temperature 104 1-5, almost a fatal heat at this hour of the day. He had become so totally unconscious to everything around that the nurse said he could get nothing down him. Alvine dejections and urine passed off involuntarily, truly these were grave symptoms. I took from a dram bottle, what I called forty grains of quinine and by faithfully working a half hour or more, we got the most of it into his stomach. I left him, more expecting to find him dead than alive at my next visit. The next morning about eight, I found him with a temperature of 99 and a pulse of 80 and his head "was level." He made a good recovery. I had good reason for thinking that quinine saved him and saved him as an antipyretic.

Case third. Patient a young woman twenty-two years of age, in the parturient state, sixth day after confinement. Was exposed by sitting beside an open window, taken with a severe chill, followed with fever, intense headache, suppression of lochia, abdominal tenderness and all those violent symptoms we get with puerperal or septic fever. Saw my patient about eleven a. m. Her temperature was 105 1-5, pulse 124. Divided a dram of sulphate quinine into twelve doses equally as possible and ordered the nurse to give a dose every three hours, also put turpentine on the bowels and blisters back of ears and on the temples. Saw her the next morning about eight, and found her with a temperature of 99, and pulse of 80. This was done by the quinine for the patient had nothing else to do it; no Dover's powders, no cathartic. The nurse had moved her bowels with an enema and subsequently with castor oil.

Case fourth. G. L., twelve years of age, ill with typhoid pneumonia. Temperature on the fifth day, in the morning, 105, pulse in harmony. Gave ten grains of quinine. At night found temperature down to 102. The next morning found temperature up to 105 again. Gave ten grains of quinine and found him at night with a temperature of about 102. The two succeeding days his temperature rose in the morning to 105 and I gave ten grains of quinine which, as before, reduced the temperature down to 102. After the fourth administration of ten grains his temperature fell and did not rise again. This

*Read before the Rutland County Medical and Surgical Society, January 8, 1907.

was an exceptionally bad case, with almost a fatal temperature. This patient had the long, jerking, sighing breathing so pathognomonic of a fatal termination.

One more case I have in mind which is of quite recent date. W. K., a young man of eighteen, was attacked with double pneumonia. The first time I saw him on Monday p. m., the malady was well under way. Crepitant rales, conspicuous over the surface of the lower lobes of both lungs. Temperature 104 2-5, pulse 120. Dyspnoea prominent. The facial surface tinged with the ominous cyanotic hue, such a common harbinger of impending danger. I followed a routine treatment for the first, second and third visits, but on the fourth visit, feeling he must be relieved, I gave him 32 grains of quinine. When I made my next call his temperature was close to normal and his pulse 80. From this time onward he made an uninterrupted and rapid recovery. The quinine evidently eliminating the cause of the intense ebullition going on within the body—the fever subsided, never more to return. I would not ignore the efficacy of the outside remedies in pneumonia or the benefit of the inside remedies, such as heroin, strychnine and digitalis.

Perhaps it will not be of interest for me to reiterate cases of this kind in which the antipyretic power of quinine was equally and as potently displayed. I think I have never given a full antipyretic dose without the desired effect. Is not this speaking in an exceptionally praiseworthy manner of a remedy? Can we get such uniform results from any other therapeutic remedy? Hardly, I think. It is a *sine qua non* in febrile attacks to get rid of the high heat. It is the phenomenon of phenomena to combat as a rule and does not quinine most efficiently and positively combat it? Aconite, digitalis and veratrum have been lauded, but neither one is as efficient as quinine and neither one is as safe. The *modus operandi* by which quinine suppresses heat has not been very clearly elucidated only as it has been said that it eliminates the poison from the system, and then the question takes a different turn and arises, how does it eliminate poison? That it does so, few deny and many affirm, and that is enough to know if it does it safely. The best mode as a rule for the administration of quinine, where danger is impending from the violence of the symptoms and the high heat, is to give five grains every three hours, which many think is as much as the stomach can assimilate at once, or to give from fifteen to forty or sixty grains at once or within the space of half an hour, and then omit for forty-eight hours. This is my experience, perhaps others have used it differently to obtain the same results. I have never seen any bad head symptoms follow these

large doses, and think now if symptoms continued urgent should give it in still larger doses. I have recently read of one practitioner giving 240 grains in twelve hours by giving 40 grains every two hours and with satisfactory results. This is heroic beyond my experience, but I am inclined to credit its utility when crowded to that extent.

To conclude, I would say that in my hands, a much smaller dose than five grains has not proved efficient to reduce heat and that from ten to forty grains will many times act more promptly and efficiently. Sometimes, possibly three grains every three hours may do good work.

SOME COMPLICATIONS OF PREGNANCY TREATED SURGICALLY.*

By Francis D. Donoghue, M. D., Boston, Mass.

Within comparatively few years, our knowledge of appendicitis and neoplasms, complicating pregnancy, has been considerably increased.

Surgical interference has also been encouraged by the attitude of obstetricians toward "operative delivery" in cases which may be called, from the surgical standpoint, uncomplicated. This is on the increase, especially in large cities, and, undoubtedly tends to encourage surgical intervention in a growing list of obstetrical conditions. The practitioner, who has seen the development of "surgical trusts" under the name of "hospitals," hesitates when he considers what his financial end is to be if he further countenances the fallacious idea that patients can not be successfully treated at home.

On the other hand, the desire for personal consideration and to remain at home, if possible, is still strong among those who have not contracted "the hospital habit."

With the large number of competent operators who desire only fair remuneration for services rendered it rests with the general practitioner whether or not he will lose the best part of his practice among the great middle class as he has lost it among what may be considered the opulent poor and the economically inclined opulent.

The value of recognizing deviations from the normal early in the conduct of these cases can not be overestimated; acting with conservative promptness in the presence of dangerous complications will save many lives, both fetal and maternal.

Surgical interference is more important in certain conditions in the pregnant than in the non-pregnant.

*Reprinted from the Journal of the American Medical Association.

APPENDICITIS.

Appendicitis frequently complicates pregnancy. The condition of obstinate and continued constipation which is so frequent during pregnancy must be looked on as a predisposing cause.

There is but one point in the diagnosis which I wish to emphasize: If there is cessation of pain without amelioration of local signs, operation is indicated at once.

The relief of tension brought about by perforation of the appendicular wall will be followed, in a few hours, by an increase in the infected area, making the results of an operation more doubtful.

Pain in the right iliac fossa, which increases as the uterus enlarges and pushes up out of the pelvis, should be looked on with great suspicion. Especially is this true of cases in which abortion comes on, following such pain.

A history of one or more such abortions should suggest surgical interference, even if the physical signs do not point definitely to the appendix.

OVARIAN TUMORS.

Tumors of ovarian or tubal origin are dangerous from their position, obstructing delivery, from torsion of the pedicle in the case of the former, or from inflammation.

A differential diagnosis between ovarian, tubal or uterine tumors, if the tumor is low down in pelvic cavity, is often difficult or impossible.

Extrauterine pregnancy presents such a varied clinical picture that it never can be excluded in making a diagnosis.

FIBROIDS.

When pedunculated, fibroids closely simulate ovarian tumors, and are liable to the same kind of accidents, while subperitoneal or interstitial fibroids may cause trouble in various ways. Change in the tumor itself, or in its relations, and the cardiac, vascular and nephritic changes which take place with tumor development, all make for early operation, at least during the child-bearing ages.

Fibroids present in a uterus after the age of 40 may give rise to symptoms which are sometimes attributed, before operation, to an increase in size or to a change in the character of the uterine growth. Operations have been repeatedly done under these conditions, and a pregnancy found as the basis for the apparent lightning up of the growth.

One case of mine was of this character, and there appears to be no way surely to escape from this error in diagnosis.

On moral grounds, the induction of labor early in pregnancy has no justification whatever. It

is fully as serious as the performance of an operation to relieve the condition which complicates the pregnancy, and in the great majority of cases the pregnancy will continue to term.

CONCLUSIONS.

When there is a history of a well-marked attack of appendicitis in a young woman, operation should be performed as an antecedent to marriage.

With well-marked, acute symptoms, referable to the right iliac fossa, in the presence of pregnancy, operate at once.

The same treatment should be applied when there is gradual increase of marked discomfort in the same region.

Operation should be advised, prior to marriage, if tumors of the uterus or appendages are known to be present.

The treatment of ovarian or uterine tumors, not recognized until pregnancy has occurred, should be governed by the conditions existing in the individual case.

At or near term, an operation may be performed which will remove the condition, and, at the same time, permit the delivery of the child.

409 Marlborough Street.

Beginning with the first of this year the Department of Health of the State of New York requires the registration of every case of tuberculosis. Next to educative influences distributed among all the people, the most potent help is the notification of all cases to local boards of health, that they may (not placard or quarantine, or otherwise make persons or places conspicuous) be assured that infected families are instructed in regard to their danger and how to avoid it, and that infected houses are disinfected.

In cases presenting the symptoms of acute epididymitis and orchitis, in which the history and examination fail to show any evidence of gonorrhea, it is always well to consider the possible presence of a torsion of the spermatic cord. The symptoms of the later condition often resemble those of an acute orchitis, namely, pain, swelling, marked tenderness, and more or less fever. The chief distinguishing points are that in torsion of the cord the pain comes on suddenly after physical exertion, straining, coughing, etc., and is often attended with marked depression and even collapse. The tenderness also appears earlier than in orchitis and is much more intense, while on examination of the cord a very sensitive swelling can be felt.

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EDITORIAL.

A glance through the advertising pages of the daily press shows that the nostrums intend to weather the Pure Food Law. Peruna comes in strong with the alcoholic percentage plainly stated on the label. There can be no excuse for ignorance for those who fancy this manner of tipple. It would be interesting to get behind the scenes and see how much if any exposures of the last year have affected sales. Of course no one expected that the confirmed Peruna addicts would be deterred by any knowledge of its alcoholic percentage. We venture to predict that none of the big frauds go out of business yet. Barnum read American character well when he said that the American people liked nothing so well as to be humbugged. The more daring fraud, the better it is appreciated. It makes little difference whether it is a mermaid, Egyptian mummy, or a patent medicine. Indeed we are

inclined to think that the latter with a good percentage of alcohol has the others beaten from the start. The way in which the most notorious of the nostrums are coming to the front in the advertising pages of our daily press looks this way.

The work of Wright on opsonins and the method of determining the opsonic index is of great interest. The perfection of his vaccination method of raising this index is of immense importance and gives promise of results which may revolutionize the treatment of certain infections by bacteria which depend for their action upon an endocellular toxin and which have the property of positive chemotaxis. Serum therapy, if of any avail, is dangerous in these cases owing to the increase in general toxæmia produced by the addition of bacteriolysin and the consequent sudden disintegration of many bacteria with the liberation of their toxins. Vaccination with the bacteria of the infection (killed by heat) apparently stimulates the production in the body of just the elements needed to render the bacteria less resistant to the phagocytes and thus gives the victory to these cells. Wright's unpublished results in the treatment of certain cases of furunculosis are said to be even beyond his anticipation. The method is new yet and it is not wise to be carried away by enthusiasm, still medical men should be ready to give all encouragement to such workers as Wright. It is through such efforts that the splendid advance of the last two decades has been made. Enough has been accomplished to prove that the principles upon which Wright bases his work is correct and even if these methods of treatment based upon this principle are never made practically available still much has been accomplished in the contribution to the knowledge of the mechanism of the immunity.

The denatured alcohol law went into effect Jan. 1, and it is expected that the manufacture of alcohol will witness a tremendous impetus. Experts in the internal revenue bureau estimate that during the first year the law is operative not less than 50,000,000 gallons will be made in this country. It will place the United States at one bound at the head of the list of countries engaged in the manufacture of alcohol for the arts and sciences. France makes annually only 9,000,000 gallons; Germany 38,000,000, and Great Britain 7,000,000. No amendments to the law will be considered by the House ways and means committee at this session, although several will be offered. It is proposed that the law shall be tested as it stands for one year, before any tinkering with it is undertaken.

The following item from the daily press may not be without interest to physicians of other hospitals: "It has been discovered that edibles, principally fruit, have been smuggled into Edward of the City Hospital. This ward is reserved for typhoid patients whose treatment requires that no food except milk at intervals be given them, and even during their convalescence their diet is only increased by a soft boiled egg once a day. The discovery that his patients, through misguided friends and relatives, have been fed on dates, bananas, apples and even sausage raised the ire of the staff physician in charge of this ward, and he has given peremptory orders that no visitors be allowed in the future except to a patient in extremis. There have been a number of deaths from typhoid recently which can now be explained by the discovery just made."

WANTED.—Copies of the November (1906) issue, for which we will pay 15 cents each.

VERMONT MEDICAL MONTHLY,
Burlington, Vt.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. J. L. Gammons, who has been in the west for two years, has settled in Poultney.

Dr. J. J. Derven, of the class of 1906, University of Vermont, has located in Poultney.

Dr. Harry Williams of Georgia and Miss Ida R. Maynard were married at Burlington January 30.

Dr. F. D. Badger of Newport was thrown from his sleigh January 26 by an unmanageable horse, sustaining a fracture of the leg.

The state supervisors of the insane have elected the following officers: President, Dr. F. E. Steele of Montpelier; secretary, Dr. G. S. Foster of Putney; treasurer, Dr. R. M. Pelton of Richford.

The death of Dr. Chas. P. Newton, aged 56, occurred at his home in Underhill Center, January 18. He was a graduate of the University of Vermont and had practiced at Underhill for 16 years. He leaves a widow, one son and a stepdaughter.

The residence and office of Dr. E. M. Pond of Rutland were destroyed by fire January 12 with almost complete loss of the furnishings. Many valuable paintings and copies, fine old furniture and a collection of old china were destroyed, together with a collection of pathological specimens. The total loss is said to be nearly \$15,000.

The engagement of Miss Flora Grandy to Dr. Henry W. Eliot, U. S. A., now located in the Philippine Islands, is announced. Miss Grandy left January 30 with the troops from Fort Ethan Allen and will sail on the transport Logan from San Francisco February 5, en route to the Philippines, where the wedding will take place. Dr. Eliot is a graduate of the University of Vermont Medical College in 1898.

—Dr. Charles S. Benedict of New York City, class of '82, University of Vermont, retired on January 1st, 1907, from the service of the Department of Health of New York City, after twenty years of active work in the Division of Contagious Diseases. For the last two years Dr. Benedict has been Superintendent of Riverside Hospital, New York City. His old associates

in the Department of Health presented the doctor with a service of silver, Commissioner Darlington making the presentation address.

Dr. Luman A. Noyes, formerly of Randolph, died at Chicopee, Mass., January 14, aged 66, of cirrhosis of the liver. He was born in Tunbridge in 1840, and graduated from the medical department of the University of Pennsylvania in 1862. During the Civil War he served as surgeon with the old Vermont Volunteers and with the 19th Pennsylvania cavalry. After the war he took up his medical practice in Randolph, continuing until 1880 when he received an appointment as post surgeon at Seal Island in the Behring Sea. His family remained here and he spent many of his winters with them. He has been agent on Seal Island for the past five years, having sole charge.

NEW HAMPSHIRE.

Dr. Elbridge G. Beers, for nearly half a century a practising physician in Plainfield, died at Lebanon, January 27, being 78 years of age.

The annual meeting of the New Hampshire Society for the Prevention of Consumption was held in the Senate chamber January 28. This society was formed several years ago. Its purpose is to educate the public through the press, by public lectures, by instructing school children, by leaflets and pamphlets, and by individual instruction by members in regard to the nature of consumption, its prevention and its cure. Dr. F. S. Towle of Portsmouth was elected secretary and treasurer in place of Dr. Hills of Concord, and the meeting adjourned till May, when the elections will be completed.

Dr. Frederic L. Hills, for ten years past the assistant superintendent of the New Hampshire State Hospital, at Concord, has been elected superintendent of the State Sanatorium for Tuberculosis at Rutland, Mass. In 1903 Dr. Hills spent several months as a staff physician at the Loomis Sanatorium for Tuberculosis at Liberty, N. Y., and has become an ardent student along this special line. In 1904 he was awarded a prize by the New Hampshire Medical Society for an essay on tuberculosis and the most approved methods of prevention and treatment, which was issued in pamphlet form by the state board of health and sent to every quarter of the state.

MAINE.

Dr. C. A. Smith of the class of 1906, University of Vermont, has located at Athens.

From December 1, 1905, to December 1, 1906, 2228 patients were treated at the Sisters' Hospital in this city. The total receipts for the year were \$28,477.12, and the amount expended was \$28,103.89. The state appropriated \$7500, and the balance of the receipts came from board of patients, subscriptions and donations.

The will of Miss Lucinda Bailey of Bath, filed for probate at the Sagadahoc county probate registry gives \$5000 to establish a city hospital, if it is established within two years after her death, which occurred a few weeks ago. For several years there has been a strong sentiment in behalf of a city hospital and since Miss Bailey's bequest became known the physicians have taken the matter up. Dr. Randall D. Bibber, Dr. Edwin M. Fuller and Dr. William E. Rice have been selected a committee to draw up plans of incorporation of a hospital association so that the original amount may be received as the nucleus of a fund.

A meeting of the Maine Academy of Medicine and Science was held recently at Portland. Dr. Stephen H. Weeks spoke on the importance of early diagnosis in the treatment of tuberculosis, while Dr. Estes Nichols of the State Sanatorium at Hebron spoke on the sanatorium treatment. Dr. Weeks gave numerous instances in his own practice as also in the practice of other physicians illustrating the good results that had followed early diagnosis of the cases. Dr. Nichols in his paper enumerated 100 cases in the various stages of the disease and showed the percentage of deaths and the percentage of cures and temporary relief. He urged that the profession aid in this work, first, by emphasizing the educational, disciplinary and hygienic value of sanatoria and special hospitals; secondly, by the promptest possible recognition of the disease regardless of bacteriological proof; thirdly, by the immediate recommendation of sanatorium care for early cases, and the necessity of persuading the patient that he is sick enough to drop work, and make a business of getting well; fourthly, by urging wealthy people to give funds to meet the needs of the association in the greatest work of preventive medicine.

STATE BOARD EXAMINATIONS.

The following questions were presented by the Vermont State Board of Medical Registration at its session in January:

PRACTICE.

1. Give the treatment, including preventive treatment, of typhoid fever, also that for the more common complications of this disease.
2. Give the etiology of and describe the different types of influenza.
3. Give (a) the differential diagnosis between rubella and rubella; (b) between rubella and scarlatina.
4. Give differential diagnosis between variola and varicella.
5. Give the period of incubation of the diseases mentioned in questions 3 and 4; also the proper period for quarantine in each.
6. Mention (a) the different types of pneumonia, (b) give its treatment.
7. Differentiate between cardiac hypertrophy, cardiac dilatation and pericarditis with effusion.
8. Write a short article on hæmophilia.
9. How would you manage a case of chronic interstitial nephritis?
10. Give the symptomatology of tabes dorsalis.

THERAPY.

1. Briefly explain: Natural therapeutics, empirical therapeutics, rational therapeutics.
2. Write a formula for each of the following: Acne rosacea, hysteria, angina pectoris, bronchiectasis, chronic nasal catarrh, enuresis, diabetes insipidus, hepatic cirrhosis, hiccup, influenza.
3. How would you treat and manage a case of infantile convulsions? (b) Of renal and vesical calculi?
4. Mention the indications for the following drugs: Potassium chlorate, salicylic acid, phosphorus, chloral, cantharides, Carb. of ammonia, potassium bromide, elaterium, guaiacol Carb. stramonium.
5. Give your drug and dietetic treatment of typhoid fever.

MATERIA MEDICA.

1. State dose and strength of dilute hydrocyanic acid. (b) What preparations used in medicine contain it?
2. Give the composition, uses and dose of the following preparations: Spir. of mindereus; (b) Comp. Syr. of squills; (c) Pearson's Sol.; (d) Griffith's Mixt.; (e) Brown Mixt.
3. Name the alkaloids, preparations and doses of ipecac.
4. Give the source, dose and action of the following alkaloids: Sparteine, berberine, atropine, narceine. (b) Give the strength of the following: Tr. capsicum, Tr. rhubarb, Tr. colchicum seeds, Tr. digitalis, Tr. aconite, Tr. hyoscyamus, Tr. viratrum vir, Tr. belladonna.
5. Discuss the composition and physiological action of ergot.

CHEMISTRY.

1. Discuss the chemical characteristics of a good drinking water. (b) State the most important facts about hydrogen.
2. Name two gases that have not been liquified.
3. How is H_2 , O_2 made? State strength. (b) Name four alkali metals and give symbol of each.

4. Mention the principal proteins of nerve tissue. (b) What is saccharine?
5. Define urobilin, urochrome, uroerythrin. (b) What leaves the body mainly through urea? (c) Give test for urea and state number of grains normally excreted in twenty-four hours.

PHYSIOLOGY AND HYGIENE.

1. Give the classification of nerves.
2. Of what does the cerebro spinal axis consist?
3. Name the coverings of the brain and describe them.
4. Describe and give the location of the corporea quadrigemina, also give function.
5. Describe healthy urine, and give constituents.
6. What are enzymes? State the special functions of each enzyme concerned in digestion. State the special functions of each concerned therein.
7. Into how many classes are food stuffs divided? Name them.
8. What is meant by the automatic action of the spinal cord? Give three examples.
9. Name some of the kinds of cells found in man. What is epithelium? What are its varieties?
1. What is meant by personal, domestic, and public hygiene?
2. What is the distinction between sewer air and sewer gas? What gives sewer gas its peculiar odor?
3. Give the hygiene of the secretory organs.
4. How do disease germs produce their characteristic effect on the system?
5. What constitutes a thorough inspection of milk as to food value and purity?

OBSTETRICS AND GYNECOLOGY.

1. Enumerate signs of pregnancy and indicate relative importance.
2. Describe the management of a case of R. O. P. presentation.
3. Give symptoms, diagnosis and treatment of placenta previa.
4. Give cause and treatment of mastitis.
5. What, how often and how much would you feed a baby one week old?
6. Name at least six of the most common conditions calling for the use of forceps.
7. Give management of a case of miscarriage.
8. Give prophylactic treatment of post-partum hemorrhage.
9. Give treatment of puerperal sepsis.
10. Give diagnosis and treatment of extra-uterine pregnancy after rupture.
1. Describe the uterus.
2. Give causes and treatment of ovaritis, acute and chronic.
3. Give symptoms and treatment of retroversion of uterus.
4. Give contra-indications for use of uterine sound.
5. Give symptoms and treatment of acute vaginitis.

ANATOMY.

1. Describe the bones of the foot, giving their divisions and articulations.
2. Describe the occipito-atloid articulation.
3. Name the superficial muscles of the neck and scalp, and give the origin, insertion and nerve supply of any one of them.
4. Describe the portal system of veins.
5. Give the origin, course, and termination of the thoracic duct.
6. State the origin, course, and distribution of the sixth pair of cranial nerves.
7. Describe the special organs of taste, and give their nerve supply.

8. Name the coverings of femoral hernia from without inward.
9. Describe the prostate gland and give its relations.
10. Give the normal position, size, form, ligaments, blood and nerve supply of the uterus.

BACTERIOLOGY.

1. Classify bacteria, and state the difference between a saprophyte and a parasite.
2. State the difference between a toxin and a ptomain. Give five sources of ptomain poisoning.
3. Describe the gonococcus, and give method of staining the same.
4. State microscopical appearance, and staining peculiarities of the tubercle bacillus.
5. What evidences of contamination of drinking water may be obtained by bacteriological analysis? Compare the value of chemical analysis with that of bacteriological analysis.

SURGERY.

1. What are toxins and phagocytes?
2. Describe four methods of reducing dislocation of the shoulder.
3. How would you treat a fracture of the elbow joint?
4. What is septicemia and pyemia? Give causes.
5. Differentiate between acute ovaritis of the right side and appendicitis.
6. Describe the mastoid operation for suppuration.
7. Name and describe four forms of talipes.
8. Describe fistula in ano and give treatment.
9. Give symptoms of acute cystitis and write a prescription for same.
10. Describe in detail Bassini's operation for inguinal hernia.

PATHOLOGY.

1. Give the pathological difference between moist and dry gangrene.
2. Give the pathological anatomy of pneumonia.
3. Give the pathology of carcinoma.
4. Give the pathology of typhoid fever.
5. Give the pathology of chronic arterio-sclerosis.

LEGAL MEDICINE.

1. Give a definition of a medicine, also of a poison.
2. Give examples of mania, monomania, dementia and idiocy.
3. What is the difference between civil and criminal malpractice?
4. Give your reasons that a child has been born alive.
5. Describe a bullet wound, entrance and exit.

OPSONINS: "OPSONIC INDEX."

In normal blood plasma (serum) there exist, or when toxins (poisons) of micro-organisms invade, are formed and circulate protective substances called "antitropines" such as bacteriolysins, agglutinins, antitoxines, etc. An opsonin is such a substance, distinct from these, normally existing in the serum and capable of being increased under certain conditions by bacterial invasion. Different opsonins respond to different bacteria, hence we have "tuberculo-

opsonin," "gonococco-opsonin," etc. Heat at 60 degrees C. for ten minutes destroys them.

By using leucocytes (white cells) washed free from blood plasma and suspended in a neutral solution; blood plasma freed from leucocytes and erythrocytes (red cells) and an emulsion of staphylococci in normal salt solution, Wright and Douglas found that with staphylococci added to leucocytes no phagocytosis (ingestion of cocci by leucocytes) occurred unless blood plasma was added.

This property of the plasma resides in a substance called "opsonin" (opsono, I prepare food for). It acts not on the leucocytes but chemically on the micro-organisms, so changing them (from negatively to positively chemotactic) that they can be ingested by the leucocytes, and this independent of the source of the leucocytes (those from a subject immunized to the micro-organism used acting in no degree different from those from a normal subject). Hence phagocytosis depends on the opsonin, and its quantity represents the quantity of opsonin in the blood plasma. Upon this depends the determination of the "opsonic index."

If there be mixed in a pipette equal volumes of leucocytes, staphylococci, and patient's serum (blood plasma), this incubated at 37 degrees C. for ten or fifteen minutes, a film made, stained, and the number of cocci ingested in 40 leucocytes counted were 80, then $80 \div 40$, or 2 is the ratio of cocci ingested to the leucocytes or the "phagocytic index." If in like manner and time the number of cocci ingested in a mixture made with normal serum were 160 in 40 leucocytes, the normal "phagocytic index" is $160 \div 40$ or 4. Dividing the phagocytic index of the patient by the normal "phagocytic index" we get the "opsonic index." In the assumed instance $2 \div 4 = .5$ —i. e. the "opsonic index" is one-half normal, the opsonic power of the patient but half what it should be against the cocci used.

This "opsonic index" may be increased by injecting dead micro-organisms ("vaccine"). First there is a decrease, "negative phase"; then recovery or "flow," then "reflow" as it passes normal and reaches "high tide" or "positive phase" at a point higher than the "index" before inoculation. Reinoculation may maintain this level or even produce a higher "index" but it must be given during the "positive" not the "negative phase" else a "low tide" may ensue and persist. As no temperature or other

manifestations follow an inoculation the only check and method of observation is repeated and constant estimation of the "index."

The application of the "opsonic index" in diagnosis and prognosis is readily seen. If an infection is localized the patient will show a low index, e. g. in furunculosis about 0.6 to the cocci, or in tuberculosis (surgical) about 0.7 to tubercle bacilli. But if it be systemic the index may be high one time, low another, e. g. in acute pulmonary phthisis 1.6 one day, 0.6 a few days later. Differentially gonorrheal arthritis has been told from tubercular, the index being 2 to gonococci, but 1, normal, for tubercle bacilli. Likewise ulcerative endocarditis from acute tuberculosis; chronic tuberculosis from malignant disease of lungs, etc., etc.

The therapeutic application is simple. Furunculosis is due to staphylococcus pyogenes. A patient with boils of four years' standing, shows an index of 0.6 to 1.1. He is inoculated with 2,000,000,000 dead staphylococci. The index falls to 0.78 but rises a week later to 1.1 and a few days later to 1.4 ("high tide"). Another inoculation, the cycle is repeated, and "high tide" reached at "index" 2. The boils disappear after several weeks. In tuberculosis Koch's tuberculin T. R. is used 1-1000 to 1-600 milligram (1 mg.=1-60 gr.) Small doses produce no temperature, an hardly appreciable "negative phase," but produce a "positive phase" which can be progressively lengthened by properly spaced inoculations, two to three weeks or more apart, given when the "positive phase" begins to ebb. The object is to keep the "index" at "high tide," thus increasing the patient's resistance. Localized tuberculosis has so far given the best results, lupus, inoperable glandular involvement, tubercular cystitis, etc.—*British Med. Journal*, July 7, 1906, p. 16 and 19; *Southern Pract.*, Oct., 1906, p. 598.

BOOK REVIEWS.

WOMAN IN GIRLHOOD, WIFEHOOD, MOTHERHOOD.—Her responsibilities and her duties at all periods of life. A guide to the maintenance of her own health and that of her children. By Myer Solis-Cohen, A. B., M. D., Instructor in Physical Diagnosis, University of Pennsylvania. Published by John C. Winston Co., Philadelphia, Chicago, Toronto.

In this book we believe that the author and publishers have really produced a very useful treatise. The book makes no pretense to be a professional treatise but is intended for the

woman herself. The important subjects it considers are treated in popular language yet with scientific fidelity and without any of the objectionable features that unfortunately mar many books on this subject intended for popular sale. We can not see how this book can possibly do harm to any one and we are sure that it would be of inestimable value in many homes.

A TEXT-BOOK OF PATHOLOGY.—By Alfred Stengel, M. D., Professor of Clinical Medicine in the University of Pennsylvania. Fifth revised edition. Octavo of 977 pages, with 300 text-illustrations, many in colors, and seven full-page colored plates. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, \$5.00 net; half morocco, \$6.00 net.

This book is too well known to need any review. The fifth edition has brought previous works up to date. The world wide reputation of its author furnishes a guarantee for its contents. All unnecessary technique has been omitted and the discussion of controversial has been reduced as much as is consistent with fairness.

ORGANIC AND FUNCTIONAL DISEASE. By M. Allen Starr, M. D., Ph. D., LL. D., Sc. D. Professor of Neurology, College of Physicians and Surgeons. Illustrated with 282 engravings in the text and 26 plates in colors and monochrome. Lea Bros. & Company, 1907, New York and Philadelphia.

This work is really a new edition of the previous work on organic nervous diseases. A careful revision of this section has been made with the addition of much new material. The section of functional nervous diseases is all new. The author bases much of his writing upon his own extensive observation but adds to this the gist of the results of others correlated and systematized. The knowledge of the nervous system and its lesions, functional and organic, has been made much more exact in the last few years, and any book which will simplify these facts and make them more available to the general practitioner is to be welcome. We think that Dr. Starr's book is such a one.

SURGERY: ITS PRINCIPLES AND PRACTICE. In five volumes. By 66 eminent surgeons. Edited by W. W. Keen, M. D., LL. D., Hon. F. R. C. S., Eng. and Edin., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Vol. I: Octavo of 983 pages, with 261

text-illustrations and 17 colored plates. Philadelphia and London: W. B. Saunders Company, 1906. Per volume: Cloth, \$7.00 net; half morocco, \$8.00 net.

This treatise on surgery, which is in reality a number of works compiled into a single series; written as it is by 66 of the foremost surgeons, both of this country and of Europe, each of whom is a specialist in the particular branch of which he writes, must needs become a leading reference library on this subject, alike for the surgeon and general practitioner. The work stands alone in the fact that it does not express the thought of any one country, exclusively, but rather is world-wide in character, representing the best surgical practice of the present time. Each chapter is an original monograph, written by a man of international repute, and embraces a wealth of detail in surgical procedure which cannot fail to be of great value to the surgeon.

A special feature of the work consists of the illustrations, of which there are about 1500, exclusive of 50 colored plates. They are unusually comprehensive and descriptive, conveying, per se, an impression of originality and meaning which helps in great degree to elucidate the subject matter of the text. The first volume deals with the history of surgery from 470 B. C. to the present time; surgical physiology; surgical pathology; infections; tumors and wounds. It is now ready and the other volumes will be placed upon the market at intervals of three months.

A TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY. For practitioners and students. By W. Easterly Ashton, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Third edition, thoroughly revised. Octavo of 1096 pages, with 1057 original line drawings. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, \$6.50 net; half morocco, \$7.50 net.

The completeness of detail is the charm of this book, and this feature has been developed to the extent that the volume is almost unique. The author states that no knowledge whatever is taken for granted, and with this as a basis details usually not mentioned are here taken up minutely. And one might well say that no subject needs such treatment more than the practice of gynecology, complicated as it is by many problems of etiquette, modesty and social position. This third edition is enlarged and revised, but in general follows out the same lines as previous volumes. For students and

practitioners of gynecology it is a book of great value.

A NATIONAL HEALTH DEPARTMENT.

In a paper read before the American Association for the Advancement of Science, at its last meeting, Dr. J. Pease Norton, assistant professor of political economy at Yale University, points out how little is appropriated from government expenditures for the preservation of the public health and advocates the establishment of a national department of health, with its head a cabinet officer, and gives rather elaborate details of the plan on which it might be organized. The economic reasons advanced for such establishment are:

(1). To advance the progress of society by the increased percentage of exceptional men in addition to the general increase of population; (2) to lessen the burden of unproductive years by increasing the average age at death. He figures that an increase of five years would save from \$800,000,000 to \$1,600,000,000 per annum. (3) It would also decrease the burden of death on the productive years, and (4) it would lessen the economic burden of sickness. Could the days of illness be cut down one-third, a saving of nearly \$500,000,000 could be made. It is estimated that \$600,000,000 are now spent on criminality in the United States. If this is largely due, as is claimed, to social environment such as overcrowding, alcoholism, etc., a fractional diminution would be of the greatest value.

At a meeting of the American Public Health Association, lately held in the city of Mexico, a strong sentiment in favor of a United States Department of Health was manifested and action was taken for forwarding this consummation devoutly to be wished for. The same kind of feeling was expressed by the Mexican and Canadian delegates, in regard to their own countries.

As a profession we have erred in the past in giving too much medicine; we err nowadays possibly in giving too little. With the development of modern pharmacology and the decline of crude empiricism; with the tendency to give a single drug to meet definite indications; with the revival of esthetic medication and the abandonment of nauseous polypharmacy, drugs are recovering their legitimate place in the therapeutic armamentarium even of the most skeptically inclined.—Alfred C. Croftan, in the preface to his new "Clinical Therapeutics."

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

DISINFECTANTS AND DISINFECTION.

H. ALBERT, Iowa City (*Journal A. M. A.*, Feb. 2), considers the subject of disinfection of apartments after contagious diseases. He finds that of the three agencies to be used, gaseous diseous disinfectants, heat and liquid solution, the former comes first, and that formaldehyd gas is best for general use. Sulphur and hydrocyanic acid are more efficient only when we have to deal with vermin such as cockroaches, bed bugs, fleas, mosquitos, etc. The things to be considered in using formaldehyd are: 1. The amount employed, which should not be less than a pint of 40 per cent. solution for every 1,000 cubic feet of space if anything more than surface disinfection is desired. 2. The gas should be evaporated as rapidly and in as concentrated form as possible. 3. Temperature should be at least 70 F. if possible and better if higher. Disinfection is unreliable if below 53 F. 4. The atmosphere should contain considerable moisture. 5. Disinfection should last from twelve to twenty-four hours in most cases. 6. Leakage of gas from the room should be prevented. The best method of using formaldehyd, in the author's opinion, is by adding to the 40 per cent. solution some chemical agent, like permanganate of potash, and he mentions some experiments which confirm his opinion of the value of the method. About twenty ounces of formaldehyd should be used for every 1,000 cubic feet of space disinfected, together with 8½ ounces of permanganate of potash. The vessel should be slightly heated and the floor protected against splashing over most valuable aid to diagnosis. Tophi are usually first in the vessel and the formaldehyd poured over in the cartilages of the nose and larynx and in the it. If the gaseous disinfection is done with sufficient thoroughness, Albert sees no need of a later use of a liquid disinfectant. In purely local infections, however, when general fumigation is not required, liquid disinfectants are of use. Carbolic acid, some of the coal-tar preparations and bichlorid of mercury solution are the best. Formaldehyd is not to be recommended as a liquid disinfectant. Details of methods of disinfection are given somewhat elaborately.

DIAGNOSIS OF RHEUMATOID JOINT DISEASE.

The differential diagnosis of chronic arthritis deformans and gout is discussed by J. B. HERRICK, Chicago (*Journal A. M. A.*, Feb. 2). He points out that there are many exceptions to the rule that arthritis deformans is always chronic, afebrile, and begins in the smaller joints. In fact, the recurrence or acute exacerbations of supposed chronic rheumatism are frequently arthritis deformans or gout. In the acuter type of arthritis, however, there is not the shifting of the process from one joint to another. The excessive sweating is lacking and cardiac complications are very rare. The acute process is slower to subside than in acute rheumatism. With the passing of time the tendency to deformities begins to be apparent and in the larger sometimes as well as in the smaller joints. Arthritis deformans is more likely to attack the temporo-maxillary, sterno-clavicular and vertebral joints than rheumatism and there sometimes may be considerable fluid in the joints. Various ner-

vous symptoms, such as burning, weakness, numbness, may be present. The X-ray may help the diagnosis. As regards gout, he holds that it is commoner in the United States than is generally supposed and is by no means confined to the "high livers." Beer drinking, lead intoxication, heredity, intemperance in diet and a sedentary life seem to be the most common causes in this country. The suspicion of gout should be present in all cases of typical rheumatism. Herrick remarks that the typical febrile big toe attack, or a history of such, excepting tophi, is the most valuable aid to diagnosis. Tophi are usually sought for in the ear. They should be looked for also in the cartilages of the nose and larynx and in the joints. They are often overlooked, he thinks, not only if they are small, but also when they are large and soft. If one watches for the points mentioned, looks out for cardiovascular accompaniments of the disease, studies the uric and phosphorus acid output and employs the X-ray he can generally make a sure diagnosis. There are, nevertheless, some cases without tophi that are pretty baffling.

JOINT AFFECTIONS IN NERVOUS DISEASE.

Four types of joint disease in nervous affections are considered by L. F. BARKER, Baltimore (*Journal A. M. A.*, Feb. 2). The first of these, the intermittent joint effusions, he considers closely related to the angioneurotic edema of the skin and mucous membranes. The danger is in these cases that a mistake in diagnosis may lead to needless and dangerous surgery or to tedious fixation and inactivity. The sudden onset, absence of fever, short duration and periodic recurrence make the diagnosis usually easy. What the patients require in treatment is rest, encouragement and a flannel bandage. Aspiration of the joint or injections are totally unnecessary. Hygienic measures will often suffice to stop the attack. Anti-neurotic remedies may be advisable for the patient's general condition and arsenic has sometimes been of service. The arthropathies of tabes and paresis are treated of at more length. The rarity of pain in these cases, the sudden firm swelling, usually rapidly extending, are characteristic in most cases, though rarely there may be pain and the swelling may be gradual. Sometimes the swelling subsides, and the joint is left but little impaired, but more frequently there is a breaking up of the joint and a mild case can be converted into a severe one by neglect and overuse. The painless character of the affection tends to lead the patient to use the joint unless strictly warned against it by the physician. Every joint of the body is liable to be affected, but the larger ones more than the smaller. Two special forms are mentioned; the tabetic foot, in which the bones of the arch are particularly involved, and the tabetic spine, differing from the other types of spondylitis deformans in its sudden onset and extensive destruction of the parts as well as in its associated tabetic symptoms. The joint lesions of syringomyelia are very similar to those of tabes, but the common occurrence of pain, the predominance of involvement of the upper extremities (80 per cent. of the cases) and the longer course of the affection are notable differences. Its treatment is limited to rest, orthopedic measures and the avoidance of trauma. Operative measures are rarely advisable. As regards the theories of these spinal arthropathies, Barker thinks that the neuritic explanation is plausible for tabes, but insufficient for syringomyelia, and that similar objections hold good in the case of the arthritis deformans tehory. In conclusion, the painless arthralgias of hysteria and the traumatic neuroses are noticed, and

the importance of differentiating them from cases of organic disease, especially tubercular, is pointed out. In doubtful cases the deep chloroform narcosis recommended by Charcot, should be employed for diagnosis. Isolation and psychotherapy are the sovereign remedies for this condition; hydrotherapy and electricity can be useful adjuncts. Brief details of such treatment are given and its surprising success is noted.

DIGESTIVE FERMENTS.

T. SOLLMANN, Cleveland, Ohio, (*Journal A. M. A.*, February 2-9), points out the unavoidable unreliability of most of the advertised preparations claiming to contain the digestive ferments, and cites the experiments of Wroblewski and others demonstrating the futility of mixing these mutually destructive substances in solution. There are also other incompatibilities, alcohol in particular, since it is a constituent of most of the preparations, and prolonged contact with it destroys the ferments. The only liquid medium in which they can be preserved for any length of time is glycerin. Dry preparations will keep indefinitely if protected from moisture, but their destruction begins at once with their action. The question is as to the activity of ferments, artificially introduced by the mouth, in the alimentary canal. Pepsin may be thus effective to some extent in the stomach, and while the diastase of the saliva, thoroughly mixed with the food, has a good chance to exert its action there, the artificially introduced dose, having but a small surface to act on, can do but little good. The same is true of trypsin, thought it may be further doubted whether the alkalinity of the stomach is ever high enough for the effective action of trypsin. If they are to act, it is necessary that they should escape destruction in the stomach and pass into the intestine, and the chances of this, considering the time the food remains in the stomach, are very slight. Digestive ferments are given with the idea of aiding digestion. They can be useful, therefore, only when there is a deficiency of ferments. This appears to be a rare condition, and they are useless when the dyspepsia depends on alterations of acidity, motor insufficiency or bacterial fermentation. Even when the ferment is deficient, we know too little of the natural adaptive processes of digestion to make our artificial medications fit the needs. When the causal condition can not be found or remedied, we can try pepsin, as it may fit the case and is harmless. Any deficiency of gastric acidity, however, must be remedied or the pepsin will be useless.

THE TREATMENT OF NONTUBERCULOUS CHRONIC ARTHRITIS.

E. A. LOCKE and R. B. OSGOOD, Boston, Mass. (*Journal A. M. A.*, February 2), discuss the treatment of chronic arthritis of nontuberculous origin under the following heads: 1. Villous arthritis; 2, infectious arthritis; 3, atrophic and 4, hypertrophic arthritis. The first is not properly an entity, though it may occur without discoverable etiology or following trauma. Nevertheless, it may accompany the other forms as part of the symptom-complex. The infectious arthritis includes those joint affections supposed to be due to some chronic infection in the blood. The articular cartilages in this group are less

likely to show marked changes than in the two following ones. Atrophic arthritis is the type characterized by atrophy of joint structures together with debility and general constitutional disturbance. It includes many of the cases of so-called rheumatoid arthritis. In the hypertrophic type there is less, if any, constitutional disturbance and a hypertrophy of cartilage and bone. The so-called osteo-arthritic types are here included. The classification is here recognized as imperfect and provisional, but is offered for the sake of conveniently stating the author's views of treatment. This is general as well as special and the former, as a rule, most important. All abnormal conditions must be sought out and remedied. The general health, physical and mental environment, and all local foci of disease must be attended to, diet regulated, exercise, dress, etc., directed. In the physical treatment he includes hydrotherapy, hyperemia, counterirritants, massage and active and passive motion, and the substitution of these for drugs is the secret of much of the success of the treatment at the present time. Hyperemia holds the chief place in the local treatment. In cases of simple villous arthritis, if conservative methods fail, radical operative measures are advised. Infectious arthritis gives a better prognosis and often improves rapidly with treatment. The authors insist on the importance of early active and passive movements to prevent adhesions. In the atrophic form, which is often very resistant, early massage and active and passive movements to correct the tendency to atrophy and fibrous ankylosis are also advisable. Operative treatment may be required. In the hypertrophic type, on the contrary, the passive motion, unless employed with the greatest care, may do harm and the main principle in the treatment of this type is rest. Mechanical support may also palliate the symptoms. The local treatment is less effective in this type on account of the tendency to bony proliferation and ankylosis. The final results in any case will depend largely on early diagnosis and persistence in the treatment. In old cases we may relieve but can hardly hope for a complete cure.

PUBLICITY AS A FACTOR IN VENEREAL PROPHYLAXIS.

P. A. MORROW, New York (*Journal A. M. A.*, October 20), declares that the concealment of facts regarding venereal disease is a factor in perpetuating the evils attending them. The value of publicity in the suppression of evils has been amply demonstrated of late, but the venereal evil furnishes the most conspicuous example of an evil that flourishes in darkness and owes its power for mischief to the obscurity to which it has been relegated by traditional prejudice. Publicity here is desirable, he says, and is absolutely indispensable to the success of plans for prophylaxis. To the question, is publicity practicable, he answers that it is, and that the sentiment that forbids the open discussion of the subject has no place in the counsels of preventive medicine. Though the newspapers are not available, physicians can work with tracts, pamphlets, conferences, lectures, meetings of medical societies to which the public is invited. Another valuable agency would be a journal of popular medicine, devoted to the study and prevention of all communicable diseases, especially those spread in ordinary relations of social life. Such a one has already been projected. He believes the present a favorable time to dispel the indifference of the public regarding this evil and to bring about reform.

THE MEDICAL PROFESSION AND VENEREAL DISEASE.

According to W. J. HERDMAN, Ann Arbor (*Journal A. M. A.* October 20), there are three leading fallacies that the medical profession must first attack in their combat with venereal disease: 1, The physiologic one, that continence in sexual life is in any way injurious to him or her who practices it; 2, the social one, that permits one standard of recognition for the man and another for the woman who has fallen from virtue; and 3, a fallacy of method, built on a misconception of the factors or the problem, and consisting in the prevalent belief that an infraction of the normal law with its evil moral and physical effects, can be repaired by any system of legal restraint or license directed to the physical effects alone, especially since such legal control must of necessity be partial and incomplete. These must be cleared away before much can be done. The present machinery of the American Medical Association, he states, affords an excellent means of providing the needed education of the public. It should have a standing committee as a central nucleus, charged with the duty of collecting statistics, disseminating literature, furthering legislation, etc., and the state medical societies should have corresponding committees, while the work should be carried further, through the county societies, health boards and officials, boards of education, teachers and church organizations. A whole systematic plan of campaign is sketched out which has been already adopted and carried out by the Michigan State Medical Society. It needs no prophet, he says, to anticipate how fruitful of good results such a systematic and thorough plan of enlightenment will be against this great evil.

THE DUTY OF THE STATE TOWARD VENEREAL DISEASES.

H. D. HOLTON, Brattleboro, Vt. (*Journal A. M. A.*, October 20), says that, before we seek aid from the state in the combat against venereal diseases, there must be a strong public sentiment which will sustain action by authority, and there must also be a strong demand for state interference. All this can only be brought about by an educational movement beginning at the home and continuing through the high and preparatory schools and college. It is quite possible, too, that the medical profession will have to be educated along the line of duty; it has hardly done its duty yet in this matter. The obtaining of the needed information to carry on the work of prevention should be the first thing undertaken, and he reproduces the circulars approved to be sent out to physicians by the Conference of State and Provincial Boards of Health of North America, asking for data as to cases of syphilis and gonorrhea, and giving information as to their avoidance and prevention. So far as Holton is informed, these circulars have only been sent out thus far in the states of Ohio and Vermont. If all cases were reported to boards of health, as other communicable diseases are (without names), so that a fairly accurate estimate could be made of the number of cases occurring, the number of each disease, how acquired, innocently or otherwise, and the effects on procreation, we would have a foundation on which to work for prevention.

THE X-RAYS IN LUPUS VULGARIS.

H. W. VAN ALLEN, Springfield, Mass. (*Journal A. M. A.*, February 2), has employed the x-ray in the treatment of lupus, using for the treatment of the

general surface, a tube with an air-spark gap of from 1 to 2 inches and a distance of the anode of about 10 inches, and duration of twenty minutes. Application is made twice a week till the first indication of hyperemia is obtained. This is usually a month or less, and then the treatments are given about once a week for a month longer. After this the patient is told to return in a month, when the surfaces will usually have a healthy pinkish color and nodules can be clearly discerned. The intervening tissue is protected and the nodules are alone treated with a tube of less than an inch air-spark gap, the distance being 6 inches and the duration twelve minutes. The applications are made three times a week until reaction takes place, when the cumulative effect is produced, with scabbing and slight ulceration. As soon as the active cautery action begins to subside, he finds the high frequency discharge given off from a low vacuum tube excited by a Tesla coil and resonator, attached to the static machine, to have great value in hastening repair and cicatrization. Other special details are given, but the above are the essentials. He compares the x-ray treatment with the Finsen method, pointing out the disadvantages of the latter as regards time required and the need of special personal attention. A table is appended giving the results in 15 cases, selected on account of the certainty of diagnosis, and giving a percentage of 80 per cent. of cures, with an average duration of treatment of six months and a lapse of time since discharge averaging eighteen months, indicating, he thinks, a permanent cure.

PATHOLOGY.

PRESERVING PATHOLOGICAL SPECIMENS.

WATERS (*Medical Record*, Dec. 1, '06), describes in full his gelatin method of preserving pathological specimens which has proven so successful.

The Method.—Care should be taken to secure the specimen to be mounted in as fresh a condition as possible, for the color once lost can never be regained. The best results are obtained when less than ten or fifteen minutes elapse between the time that the tissue is removed and its submersion in the fixing fluid. If several hours must intervene dry cloths or cotton should completely envelop it to absorb the moisture. Refrigeration, while preserving the color temporarily, should not be employed on specimens to be thus prepared. All free blood adherent to the surfaces, due to surgical or post-mortem operations, should be gently washed away and the tissue placed in a relatively large amount of the following solution:

No. 1. Potassium nitrate.....	15 grams.
Potassium acetate	30 grams.
Formalin	200 cubic centimeters.
Water	1000 cubic centimeters.

At this time care must be taken to have the various parts placed exactly as they are finally to remain, for within a short time they become fixed in whatever position they happen to be, and cannot be altered thereafter. If the specimen possesses a cavity, as does the gall-bladder, appendix, intestine, etc., the contents may be carefully removed and replaced by some of the above solution. The length of time for complete fixation of color varies with the size and variety of specimen. About twelve hours will usually prove sufficient for the majority. Brains, blood clots, and very large specimens require from one to two days. At the end of this time the object, which should now

be comparatively firm, is removed from the liquid, immersed for a few minutes in water, and then placed in No. 2: Alcohol.

From the color standpoint, this is the most important part of the entire process, as the return of the color temporarily lost in No. 1 solution will be partial or complete, according as the alcohol is applied for an improper or a proper length of time. And the only way to determine that proper time is to watch each individual case. When the tissue is removed from the fixative fluid the blood is of a dark-brown color. Upon submersion in alcohol this is gradually replaced by a light-red one, essentially the same as normal blood. As soon as this tint is seen the alcohol may be known to have acted sufficiently long and should be removed at once. From one to five hours will probably be a fair average for the majority of specimens. Prolonged immersion will cause the color to fade, after which it cannot be regained. The colors having now returned, whatever excess of alcohol is present is washed away by water or the specimen may be placed without washing into

No. 3. Potassium acetate100 grams.
Glycerin200 cubic centimeters.
Water1000 cubic centimeters.

Here it may remain for days or months as a permanent mount (Kaiserling), or it may be continued to the final step. The sooner this last step is taken, however, the better will be the preservation, as No. 3 tends to macerate tissue. Some of our best specimens have been subjected to this solution for less than an hour.

No. 4. Gelatin200 grams.
Solution No. 3.....3000 cubic centimeters.

This preparation is made as follows: About three or four liters of the above are placed in a good agate ware pail over a gas flame and brought to the boiling point in the shortest possible time. When a temperature of about 55 C. has been reached and the gelatin is nearly all melted the white of one egg is added for every liter present, and the entire solution is rendered strongly acid by acetic acid. As soon as the boiling becomes active, the hot preparation is poured into a filter with two thicknesses of paper, and the clear solution is collected in a stock jar. After solidification, a crystal of thymol placed on the top of the stock solution will effectually prevent the appearance of fungi. This solution should be clear and practically colorless. The mounting may be done in square museum jars, test tubes, etc., according to the nature of the specimen, but will probably be more attractive and useful if made in a Petri dish.

The thymol is removed from the stock solution and the contents melted by heating the container in a steam sterilizer. When completely liquified and at a temperature of 45 or 50 C. a thin layer is poured into the Petri dish and to it is added one drop of formalin to each 20 c.c. of the solution. Into this is placed the specimen face downwards, where it is allowed to stay till the gelatin has become solid. More of the formalin-gelatin solution is now added, sufficient to almost, but not quite fill the dish. This should be allowed to solidify thoroughly for ten or twelve hours in the ordinary room temperature. More of the same solution is finally added, till a slight convexity is formed above the edges. A wet plate glass is now slid over the top of the dish in such a way that all the air bubbles are forced out. This being completed it is set aside for an hour or more with the glass still on top. The superfluous gelatin is now removed with a coarse brush, and a cement of Canada balsam, with 20 per cent. clove oil, is applied around the entire circumference. The next day the

glass is carefully washed, another coat of balsam is applied, and the specimen is permanently mounted. Every six to twelve months a new coat of the balsam should be applied. Mounting in jars is much more simple. All that is required is to fill the jar with a sufficient amount of the gelatin-formalin solution, place therein the specimen, allow to solidify and put on the top. A small air space here does no harm.

MATERIA MEDICA.

STANDARDIZATION.

ROBINSON (*Medical Record*, Dec. 29), summarizes an article entitled "The Bursting of the Standardization Bubble" as follows: Standardization is useless: (1) when the active principle fully represents the drug it requires no argument that standardization is useless, and worse than useless, because the active principle offers indisputable advantages in (a) smallness of dose, (b) convenience of administration, (c) exactness of dose, (d) freedom from objectionable and irritating inert material, (e) non-changeability, (f) non-variability, and more rapid absorption. (2) When the active principle does not represent the drug in every respect, standardization of one active principle is worse than useless, because it gives no information as to the absolute and relative amount of the other active principles, and does not provide for the removal of antagonistic principles. Standardization is unreliable, for even if the galenical preparation, when made, contains the exact percentage of active principle, the latter soon begins to deteriorate; changes in temperature, exposure, evaporation, cause a change in the menstruum, which in its turn produces precipitation, etc. That such deterioration is actual, and not hypothetical, has been publicly acknowledged by one of the most prominent manufacturers of galenical preparations. Standardization is unscientific and imperfect. Processes of assay as found in the Pharmacopeia, which one would expect to be reliable and give definite results, have been declared by the highest authorities to be unpractical, utterly unworkable—and to give discordant results in the hands of different chemists. All this being the case—and that it is the case is publicly acknowledged by the manufacturers of galenicals and adherents of standardization themselves—is not the question legitimate? What is it all for? Why not go to the root of the matter, give up most of the galenicals, and use, wherever feasible, the active principles instead?

SURGERY.

IMPORTANCE OF EARLY DIAGNOSIS AND OPERATION IN CANCER.

J. C. BLOODGOOD, Baltimore (*Jour. A. M. A.*, Nov. 3), says that until the etiology of malignant growths is ascertained and a treatment based on this elaborated, the chief problems are: 1. Early recognition. 2. The method of operating. The public must be educated as to the curability of malignant tumors taken in time, and that their great fatality is due to delay. The responsibility of the general practitioner here is greater than that of the surgeon, the latter has enough to do to fit himself to act rightly when the cases come to him. If the general practitioner does his duty by immediate consultation with the surgeon the surgeon must be prepared to meet the new requirements of diagnosis, and in this connection Bloodgood lays stress on the importance of his being able to make a naked eye diagnosis at the time of the operation or of an exploratory incision. As regards

the alleged danger of the latter for diagnostic purposes, he thinks it far less than that of delay. The earlier surgical lesions, especially tumors, come to the surgeon for treatment the more frequently will exploratory incision have to be resorted to. He goes over the various types of the malignant growths as regards their relative malignancy, and says that it is of the utmost importance for the general practitioner and the public to be keenly watchful in their attitude to small and apparently innocent warts, nodules, scabs, ulcers and little areas of induration on the mucous membrane of the lower lip, tongue and mouth, skin of face, in an individual over thirty. Congenital pigmented moles should also be watched for and their immediate excision advised. Other growths mentioned as suspicious and calling for operation are asymmetrical tumors and nodules in or near the thyroid, single tumors in the breast, dubious indurated masses in the stomach wall discovered on exploratory incision. Local pain referred to a bone should also always be regarded as suspicious and as calling for an X-ray examination. The main point of the article is the importance, not only of early recognition of the growth, but also the necessity of the surgeon being able to recognize the nature of the growth and its probable prognosis and to adapt his operation accordingly.

TREATMENT OF LEG ULCERS.

R. E. GETELMAN, (*Albright's Office Practitioner*, February, 1907), suggests the following: After thoroughly cleansing the ulcerated surface with an antiseptic (solution of carbolic acid or bichloride of mercury) paint the ulcer with a saturated solution of permanganate of potash until it has become a deep purple color; then apply hydrogen peroxide until it has completely decolorized the permanganate; after this, apply a wet dressing of Burrow's fluid (lead acetate, $\frac{1}{2}$ oz., alum, 1 oz., water, 1 pint). In two or three days you will be agreeably surprised to see new, healthy granulations covering the surface of the ulcer, and it will rarely be necessary to repeat the application of the permanganate and hydrogen peroxide, except to such portions as were not completely covered at the time of the first application. This treatment is slightly painful, but will accomplish the same purpose as a curettement, and patients will not object to it. Using a curette over the surface and scarifying the edges of such an ulcer will frequently awaken new granulations, but we all know how frequently patients will object to the use of any instrument, and you will find this a safe, sure and pleasant method of overcoming one of the most annoying conditions which is met in daily office practice.

THE X-RAYS IN LEUKEMIA AND HODGKIN'S DISEASE.

A. H. ROTH, Ann Arbor, Mich., (*Journal A. M. A.*, October 20), reports two cases treated with the x-rays; one of Hodgkin's disease, in which the relief of symptoms was obtained, though they probably may recur unless the treatment is continued, and one of splenomyelogenous leukemia, in which the continued application of the rays for over a year has brought the blood down to the normal and largely reduced the splenic enlargement. Arsenic used as an adjunct to the treatment seemed to be of benefit. The first effect of x-ray treatment was to increase the number of leucocytes in the general circulation. This was accompanied by a large increase of degenerate cells, most of them disintegrating myelocytes. No toxic

symptoms have developed in the patient, and though the blood count has remained normal for two months, the continued use of the x-ray at intervals is advised to prevent possible recurrence. The application was made in the leukemic case over the spleen and long bones with a hard tube at a distance of ten inches from the anode, the applications lasting from 7 to 15 minutes. In the case of Hodgkin's disease the x-ray treatment was made over the enlarged glands.

SOCIETY MATTERS.

OFFICERS OF THE VERMONT STATE MEDICAL SOCIETY.

President—D. C. Hawley, Burlington.
Vice-President—C. W. Strobell, Rutland.
Secretary—Geo. H. Gorham, Bellows Falls.
Treasurer—B. H. Stone, Burlington.
Auditor—J. H. Blodgett, Saxtons River.

Committees.

Executive—D. C. Hawley, Geo. H. Gorham, M. L. Chandler.
Publication—Geo. H. Gorham, G. R. Anderson, C. H. Beecher.
Legislation—F. T. Kidder, H. D. Holton, E. R. Campbell.
Necrology—M. H. Eddy, C. S. Scofield, E. H. Martin.
Anniversary Chairman—J. N. Jenne, Burlington.

SECRETARIES OF COUNTY SOCIETIES.

Addison—Geo. F. W. Willard, Vergennes.
Bennington—L. H. Ross, Bennington.
Caledonia—W. J. Aldrich, St. Johnsbury.
Chittenden—L. P. Sprague, Burlington.
Franklin—E. P. Lunderville, Richford.
Lamoille—S. G. Start, Cambridge.
Orleans—H. E. Somers, Derby.
Rutland—C. F. Ball, Rutland.
Washington—O. G. Stickney, Barre.
Windham—H. L. Waterman, Brattleboro.
Windsor—M. P. Stanley, White River Junction.

MINUTES OF NINETY-THIRD ANNUAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY, HELD IN BARRE, OCTOBER 11th AND 12th, 1906.

(Continued.)

E. S. Allbee of Bellows Falls then gave the vice-president's address, entitled "The Treatment of Fractures." Discussion opened by C. M. Campbell of Rochester and J. M. Allen of St. Johnsbury, followed by C. W. Strobell of Rutland. Closed by Dr. Allbee. Prof. Egbert LeFevre of New York city presented an essay entitled "Treatment of Chronic Cardio-Vascular Diseases."

On motion of W. N. Bryant, it was voted that Prof. H. D. Arnold of Boston should be invited to give his paper at this time on "Arterio-Sclerosis." The discussion on Professors LeFevre's and Arnold's papers was opened by J. N. Jenne of Burlington, J. Henry Jackson of Barre and W. N. Bryant of Ludlow, followed by P. E. McSweeney of Burlington. Closed by Drs. LeFevre and Arnold.

On motion of W. N. Bryant, Professors LeFevre and Arnold were elected honorary members of the society.

Adjourned at 5 p. m.

The annual banquet took place in the vestry of the Congregational Church, about 160 being present, including the ladies. The society was honored by the presence of Gov. Proctor and Lieut. Gov. Prouty with their wives. Walter L. Havens of Chester was anniversary chairman, and the following gentlemen responded to toasts: His Excellency, Gov. Fletcher D. Proctor, Lieut. Gov. Prouty, Prof. H. D. Arnold of Boston, D. C. Hawley, W. Scott Nay, Rev. F. A. Poole, J. Hollister Jackson, A. L. Miner and W. N. Bryant.

Evening Session.

Met at 10.15 p. m., the vice-president, E. S. Allbee, in the chair.

M. L. Chandler of Barre then gave the president's annual address, entitled "Nephro-lithiasis." Discussion opened by A. C. Bailey of Randolph. Closed by Dr. Chandler.

Adjourned at 11 p. m.

Second Day, Friday, Oct. 12.

Called to order by the president at 9.15 a. m.

Dr. M. S. Woodman of Lebanon, N. H., was introduced as the second delegate from the New Hampshire Medical Society, who responded briefly.

H. C. Tinkham of Burlington then presented his paper on "The Care of Surgical Cases: their preparation for operation and their care after operation, with special reference to abdominal surgery." Discussion opened by C. W. Stroboll of Rutland, followed by D. C. Hawley, J. H. Blodgett and C. B. Doane. Closed by Dr. Tinkham.

C. A. Pease of Burlington gave a paper on "Tetanus, with special reference to 4th of July injuries." Discussion opened by William Lindsay of Montpelier and A. L. Miner of Bellows Falls, followed by H. C. Tinkham, S. E. Maynard, B. H. Stone and J. E. McSweeney. Closed by Dr. Pease.

C. H. Beecher, as clerk of the House of Delegates, presented his report which, on motion of C. W. Stroboll, was accepted and adopted.

At this time the treasurer's report was taken up and on motion it was accepted and adopted.

C. H. Beecher of Burlington presented a paper entitled "Trichinosis." Discussion opened by George F. Edmunds of Bristol and S. E. Darling of Hardwick. Closed by Dr. Beecher.

The remaining papers on the program were read by title only.

Adjourned at 12.30 p. m.

REPORT OF THE HOUSE OF DELEGATES.

The House of Delegates was called to order by Secretary Geo. H. Gorham at 5 P. M. Thursday, Oct. 11.

L. C. Holcombe of Milton was chosen chairman and C. H. Beecher of Burlington, clerk.

The roll call of delegates showed 26 members present.

The resignation of Dr. D. C. Hawley from the House of Delegates was accepted.

The House then proceeded to the election of officers for the ensuing year.

Dr. D. C. Hawley of Burlington was elected president by a unanimous ballot, Dr. C. W. Stroboll of Rutland was elected vice-president, Dr. Geo. H. Gorham of Bellows Falls was re-elected secretary, Dr. B. H. Stone of Burlington was re-elected treasurer, and Dr. John H. Blodgett of Saxtons River, auditor.

Executive Committee—Drs. G. H. Gorham, D. C. Hawley and M. L. Chandler.

Committee on Publication—Drs. Geo. H. Gorham, C. H. Beecher and Geo. R. Anderson.

Committee on Necrology—Drs. M. H. Eddy, C. S. Scofield and E. H. Martin.

Committee on Legislation—Drs. F. T. Kidder, H. D. Holton and E. R. Campbell.

Anniversary Chairman—Dr. J. N. Jenne of Burlington.

It was voted to present the names of Dr. Janes of Waterbury and Dr. Hammond of Rutland for recommendation to Gov. Proctor for the appointment on the State Board of Medical Registration.

Drs. J. W. Jackson, W. W. Townsend and C. F. Dalton were elected a nominating committee to bring in a list of names to serve as delegates to the various State societies and colleges. They reported as follows:

American Medical Association—J. Henry Jackson.

Massachusetts Medical Society—C. E. Chandler, C. B. Ross.

Rhode Island Medical Society—S. E. Maynard, W. E. Lazell.

New Hampshire Medical Society—S. W. Hammond, F. K. Jackson.

Connecticut Medical Society—John Gibson, C. F. Dalton.

Maine Medical Society—P. E. McSweeney, A. L. Miner.

New York Medical Society—W. W. Townsend, F. R. Stoddard.

White River Medical Society—S. S. Eddy, E. A. Stickney.

University of Vermont—T. R. Stiles, W. N. Bryant.

Dartmouth College—C. S. Caverly, H. S. Carver.

The report of the committee was accepted and adopted.

A committee consisting of Drs. Bryant, Tinkham and Jenne were elected to present a plan for permanent organization of the House of Delegates.

The place of meeting for next year was discussed and St. Johnsbury was finally chosen.

A motion to increase the annual dues to \$2 was made, seconded and carried.

A motion to adjourn was lost.

The committee appointed last year to confer with other societies in regard to contract medical practice, and consisting of Drs. Miner, Beecher and Stickney, reported as follows:

Your committee appointed at the annual meeting last year in Burlington to investigate the action of the various State medical societies and their component societies as regards contract medical practice, beg leave to submit the following report: Out of 33 States heard from, two State societies, New Hampshire and Delaware, have passed prohibitory resolutions. In seven other States, including our own, there has been some prohibitory action by the county and city societies. Four other State societies have discussed the matter. The medical press in many states is strongly agitating the question and there is evidence that such agitation is rapidly spreading. The Vermont State Homeopathic and the Vermont State Eclectic societies have no resolutions regarding the matter, as none of their members are doing contract work. We recommend the adoption of the amendment of the constitution introduced a year ago and reading as follows:

"On and after the first day of January, 1907, no member of this society shall accept the position of club, society, lodge, organization or corporation physician, or agree, or continue to do any medical or surgical work for any club, society, lodge, organization or corporation at a less rate than the regular or customary charges for like services rendered by other physicians in the same locality for patients not members of such club, society, lodge, organization or corporation.

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"Also, that in no case shall any physician agree to attend the families of the members of such club, society, lodge, organization or corporation at half price, or less price than the regular rate.

"Nothing in this section shall be construed as preventing any member from attending the worthy poor at a less rate, or to give free services to those too poor to pay anything.

"Any violation of this article shall be considered unprofessional conduct, and it shall be the duty of the House of Delegates to expel such members when proof of such conduct shall be presented to them."

Also, that in no case shall any member of this society consult with or render professional assistance to any contract surgeon or physician in their contract work.

Signed by the Committee, O. G. Stickney, A. L. Miner and C. H. Beecher.

The report was accepted. There was considerable discussion of the proposed amendment, and finally it was accepted and adopted.

The meeting then adjourned to 8 o'clock the next morning.

The adjourned meeting was called to order by Dr. Holcombe.

The committee on permanent organization were called upon, but asked that they might make their report at the next annual meeting. They were continued by consent.

A motion to have the Transactions printed under the same arrangement with the Vermont Medical Monthly as last year, was carried.

The question of life insurance examination fees was discussed, but no action was taken.

A motion was made to reconsider the amendment on contract medical work passed the previous evening. It was carried. A motion to withdraw the resolution was made and carried.

After more discussion, the following resolution was passed:

"All medical contract work is looked upon by the Vermont State Medical Society with disapproval, and the members of the society and the State press should be so notified."

Motion by Dr. Jenne to adjourn was carried.

DELEGATES PRESENT.

Caledonia County—J. M. Allen, W. B. Fitch.

Chittenden County—C. F. Dalton, L. C. Holcomb, W. G. Church, C. H. Beecher, H. C. Tinkham, J. N. Jenne, J. H. Dodds, J. M. Clarke.

Lamoille County—J. C. Morgan, Geo. L. Bates.

Orleans County—Z. M. Longe.

Rutland County—W. N. Bryant, W. W. Townsend, M. R. Crain.

Windham County—A. L. Miner, E. S. Allbee, C. R. Aldrich.

Windsor County—C. H. Hazen, C. B. Doane.

Washington County—A. C. Bailey, H. S. Carver, J. E. McSweeney, A. B. Bisbee, J. W. Jackson.

CHITTENDEN COUNTY.

The regular meeting of the Burlington and Chittenden County Clinical Society was held at the medical college, Thursday evening, Jan. 31, with the following members present: Drs. S. E. Maynard, Lyman Allen, J. B. Wheeler, J. M. Wheeler, D. J. Nolan, F. J. Arnold, C. K. Johnson, E. S. Lane, G. M. Sabin, C. A. Pease, C. H. Church, F. K. Jackson, D. M. Shea, G. E. Latour, W. D. Berry.

The paper of the evening was read by Dr. S. E. Maynard, "The part played by enteroliths in gangrenous appendicitis, with points in diagnosis." The discussion was opened by Dr. J. B. Wheeler, followed by Drs. Shea, Allen and Beecher.

Refreshments were served.

THERAPEUTIC NOTES.

W. B. Saunders Company of Philadelphia and London have just issued a revision of their handsome illustrated catalogue of medical, surgical and scientific publications. Beyond question this is the most elaborate and useful catalogue we have ever seen; the descriptions of the books are so full, the specimen illustrations are so representative of the pictorial feature of the books from which they are taken, and the mechanical get-up so entirely in keeping with the high order of the content. The authors listed are all men of recognized eminence in every branch and specialty of medical science. The catalogue is well worth having, and we understand a copy will be sent free upon request.

Physicians who are interested in the study and legitimate practice of the physical (drugless) therapeutic methods, notably electro-therapy, photo-therapy, mechano-therapy, hydro-therapy, suggestion and dietetics, are invited to join the American Physiotherapeutic Association. Address the secretary, Dr. Otto Juettner, No. 8 W. Ninth St., Cincinnati, Ohio. The officers for the ensuing year are: President, Dr. H. H. Roberts, Lexington, Ky.; secretary, Dr. Otto Juettner, Cincinnati, Ohio; treasurer, Dr. Geo. H. Grant, Richmond, Ind.; executive council, Drs. W. F. Klein, Lebanon, Pa.; Jas. Hanks, Brashear, Mo.; J. W. Unger, West Point, Miss.; Chas. S. Northen, Talladega, Ala.; R. W. Gibbs, Columbia, S. C.; S. J. Crumbine, Topeka, Kans.; F. L. Keeler, Perry, Okla.

"Salicylates act at least in two ways in the body. In the case of acute articular rheumatism, in which they are supposed to exercise a specific influence, they probably act deleteriously upon the micro-organism which is responsible for the malady, whereas in the case of chronic rheumatism or gouty conditions depending upon diathetic states they produce some influence upon metabolism or the oxidation processes in the body which we do not understand, but of which we are therapeutically certain." It is of the greatest importance, therefore, that the salicylic acid administered should be from natural sources and not the synthetic product. Physicians can rely on the fact that all the salicylic acid in Tongaline is made from the pure natural oil of wintergreen and that it does not possess the disturbing effects of the salicylic acid made from coal tar.

As the colder weather approaches, certain diseases and remedies will be more on the minds of the profession. Among the remedies will be cod liver oil. Hagee's cordial of the extract of cod liver oil compound is not only one of the most popular cod liver oil preparations on the market, but one of the very best, if not, indeed, the best itself. All the nutritive properties of the oil are retained and the disgusting and nauseating elements are eliminated. Combined with hypophosphites of lime and soda it offers to the profession a reconstructive of great value. The writer has for some years prescribed it freely, and with great satisfaction.—*Massachusetts Medical Journal*.

PHYTIN AND FORTOSSAN.—I have used phytin and fortossan with weak children, increasing the development and the nutrition of the frame. I observed that these medicines are efficacious and easy to take. I prescribed phytin to build up the system in the case of older children with whom cod-liver oil and iron or arsenic did not agree. Phytin was perfectly agreeable to them and the effects produced marvellous. Finally I used the tonic action of this phosphorous preparation for nervous, sick or weak systems, and I obtained results that I hoped in vain to obtain by glycerophosphates or lecithin. I quote the case of a child of four years old, of a nervopathic family, who suffered from insomnia and bad dreams, and was cured in a little while by phytin to the exclusion of any other treatment. I shall mention still another case of a young man, 14 years old, pupil of a college, who presented very grave symptoms of neurasthenia accompanied by St. Vitus' dance; both disappeared in a very short time by the use of phytin, and there was no return of the same. In addition to these brilliant results that I have obtained, I should like to say that phytin must be considered as an aliment of the bones and of the nerves rather than a medicine. As such it must be taken for a long time and without interruption. It is useless to use large doses; 50 centigrams daily in two doses will suffice perfectly, but it is very important to administer in these nerve diseases a daily and constant supplementary ration of phosphorus. Phytin is organic phosphorus in a form deprived of any injurious effect, even when the administration has not been interrupted for several months.—Dr. Ph. Lessons, Professor of Obstetrics, Royal University of Turin.

CALX IODATA IN WHOOPING COUGH.—Some time ago my attention was drawn to calx iodata by a "drug man," so I ordered an ounce of tablets to try in a case of croup if I had a chance. While waiting for the croup to appear I had a case of whooping cough.

No. 1. Boy about eight years old. Parents tried all kinds of remedies, but with no results. I gave him calcidin and calcium sulphide and had him on the road to recovery in a few days.

No. 2. Girl, three weeks old. Gave calx iodata to saturation. This baby coughed continually. In 24 hours was easier and recovered in a few days.

No. 3. Boy, six weeks old, whooped every half hour during the night, but not so bad day times. Gave him 16 tablets in 16 teaspoonfuls of water, directions one-half teaspoonful every hour until relieved—then every two hours. The next night he coughed three times, continued to for a week and then was well.

No. 4. Boy, five years old. Whooping cough. Would vomit every time he coughed and was weak from want of nourishment. I gave calcidin every two hours. Next day he was better but vomited some. In three days no vomiting, and gaining in strength. No more whooping cough.

No. 5. My three boys, age eight months, three years and five years. All came down with whooping cough. I gave the baby calx iodata and in a week no more whooping cough at night. Slept well. The other boys calcium sulphide. The one aged three years would whoop twice at night after giving the treatment. The oldest one "whooped" twice and all told made a very quick recovery.

I treated over 60 cases of whooping cough last winter (1905-6) from three years of age to forty, and with children who couldn't swallow a pill I gave the calx iodata in solution of water, and gave it to saturation and gave it quickly, and with as good results as if I had given calcium sulphide, as I did with the older ones. Didn't have a case that didn't get well with this treatment. Also used calcidin in



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Pott's disease with good results, also in enlarged tonsils, glandular enlargements, disease of middle-ear, etc. I know of several doctors in this neighborhood who used it with the same results.—P. E. Hanes, Maynard, Iowa, in *Amer. Jour. of Clinical Med.*

THE ANEMIAS OF CHILDHOOD.—The anemias of early life are usually sequels of the acute diseases common to this period. The exanthemata are especially liable to be followed by a depreciation of blood quality, and a protracted convalescence often depends on this one condition alone. Moreover, the frequency with which physical stigmata or infirmities actually date from an attack of measles, scarlet fever, diphtheria or any of the other similar diseases of childhood, can often be properly laid at the door of insufficient or improper care during the very important stage of convalescence from these diseases. It should be recognized that the hematogenic function while exceedingly active in childhood, is yet very susceptible to all inhibitory influences, among which the toxins generated in the course of the acute diseases are most common. When a storm infection of measles, scarlet fever or any of these similar ailments is passed, there must follow a period of reconstruction. If the damage has been slight as a result of a light storm or an unusually strong structure, the reconstructive process places little demand on the resources of the individual. But if the storm has been unusually severe and the structure ill-prepared to meet its fury, the rebuilding process is certain to be long and laborious. Deficiency in the quality of the blood is one of the greatest handicaps at this time, and the clinician should recognize this as one of the most important indications for therapeutic assistance. The action of Pepto-Mangan (Gude) is always very marked in these cases, and it is interesting to note how rapidly children respond to its upbuilding influence. A marked increase in hemoglobin at once follows its use and the red cells multiply rapidly. With improvement in the blood constituents there is a corresponding increase in the whole bodily tone, and it only takes a few days to carry the average patient safely away from the dangers of a trying period. Pepto-Mangan (Gude) is therefore a very valuable tonic in childhood, and unlike so many of the ordinary hematinics it can be given with impunity to the youngest infant. It has marked alterative properties, and in strumous or marasmic conditions it is especially valuable. It is absorbed rapidly, and is never rejected by even the weakest stomach. In early life its administration is best effected by giving it in milk, and the dose should range from ten drops to two teaspoonfuls, depending, of course, on the age of the patient.

A FAIR TEST OF CALCALITH.—From Dr. Toland down in Texas comes the statement: "There's nothing surpasses Calcalith (Abbott). I gave it a fair test two weeks ago in a patient who had cystitis, prostatitis, urethritis and gonorrheal rheumatism and was passing 'matter' (pus and blood) with his urine. He surely was in a bad condition, but Calcalith with other alkaloidal remedies (calcium sulphide and tonics) soon brought him around all right."

OZENA.—Some three months ago a young lad, Master S., 12 years of age, was brought to my office with the request from his teacher that he be sent home. As he entered the room I was much impressed by the fearful odor from him. It was indescribable and permeated the entire room. Not having a case like this before, I made a careful examination for the cause. He was anemic, had difficulty in breathing, was somewhat emaciated and seemed poorly nour-

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ished. On questioning him I found that this condition had existed for some time (two months or more), the odor steadily becoming worse. He had been treated by physicians unsuccessfully in the meantime. As the rules of the Board of Health of this division limit me to simply a diagnosis, I pronounced the case from the odor, history and limited examination a case of ozena or fetid form of atrophic catarrh, with a possible necrosis or caries, and referred him to the nose and throat hospital of this city, his teacher and the principal meanwhile protesting against his attending school, and as I had no authority to send him home, the disease not being recognized as contagious, I advised he be allowed a seat by himself. At the end of two weeks' time, not seeing what I would consider much of an improvement, I on my own responsibility gave him a K. & O. douche and a small bottle of Glyco-Thymoline. In about ten days the odor was hardly perceptible, and at the end of two months it had entirely disappeared. His general condition was remarkably improved as well as his sense of smell. The case was watched daily both by myself, the principal and his teacher, who became interested as the case progressed. Summary: The boy has not lost a single day at school, his sense of smell is completely restored and his health has never been better.—E. E. Hitchcock, M. D., New York City.

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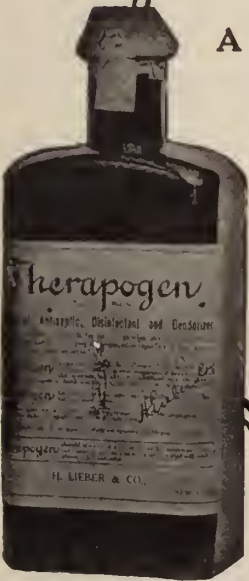
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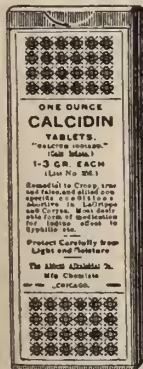
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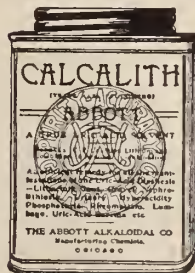
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ORIGINAL ARTICLES.

THE TREATMENT OF THE PERNICIOUS VOMITING OF PREGNANCY.*

By E. A. Colton, M. D., Montpelier, Vt.

The vital question in the treatment of the vomiting of pregnancy lies in determining the presence of the indications urgently calling for the interruption of gestation. This question is naturally confined to such cases of vomiting as are clearly pernicious, and arises only after the expectant methods of treatment have been faithfully and skillfully tried.

The physician called to the average case of vomiting of pregnancy does not recognize it as one of a pernicious type, and generally, his simple expectant remedies, and good advice—to take a light breakfast in bed; obtain free action of the bowels, and avoid excessive exercise, are sufficient. Such cases are often referred to as the physiological, which term immediately eliminates all anxiety.

But the case may not do well. The vomiting continues, and increases in frequency, until the process is plainly no longer physiological, and we apply the term exaggerated, indicating that all concerned are a bit disturbed.

The physician ought to recognize this gradation. He should demand certain hygienic conditions for his patient and administer well selected medication, closely watching its effect. He should make a thorough vaginal examination at this time in an effort to discover any local cause for the vomiting, that he may add local treatment to the hygienic and medicinal just mentioned.

Hygienically let him insist that the woman become a bed patient, that her room be as carefully selected as for any severe illness; that she be relieved of all matters disturbing to the mind, and that quiet prevail.

Sexual intercourse should be prohibited. This recommendation was made in every au-

thority reviewed, and in most of them, was strongly emphasized.

The susceptibility of the nervous system of pregnant women is well recognized and this fact has been cited as a reason for the use of suggestion and impression in treating the sufferer from pernicious vomiting. This is a dangerous zone, and its trial rather than its use is perhaps justifiable.

In general, let her have a light diet, consisting of malted milk, broths, milk and lime water or vichy, in the early hours of the day; with scraped beef, gruels, eggs and the slightly heavier dietary when the stomach shows greater tolerance in the afternoon hours. Occasionally a patient is reported to have craved some particularly questionable food—like ham or sausage,—and gratification of this whim has proven the stomach's tolerance, and its ability to digest such diet.

Two factors have influenced the shaping of medication in the treatment of the vomiting of pregnancy. One is our lack of knowledge of the causal relation existing between the condition of pregnancy and its vomiting: the other is the fact that many cases of vomiting that have become very alarming in their severity are really self-limited, and, when the symptoms suddenly cease, the remedy last employed receives credit beyond its deserts.

Bismuth subnitrate, cerium oxalate, sodium bicarbonate, tinct. of iodine, wine of ipecac, chloroform, are all commonly used. The sedatives, sodium bromide, chloral, and the preparations of opium, have each given good results in certain cases. Sodium bromide gr. one-tenth, in camphor water one-half ounce, is recommended by many.

These remedies are of use only in the milder cases. When the vomiting approaches the pernicious, it has seemed to me that the very thought of food or medication by mouth served only to actively aggravate the hyperemesis it was intended to allay.

As a result of the vaginal examination some local pelvic treatment may be indicated and afford ground for hope. If a real abnormal

*Read before the Washington Co. Medical Society.

condition is found and accurately diagnosed, treatment will avail, no doubt; but much time is lost and annoyance caused the patient by an error in diagnosis. The greatest care must be exercised in this field. Inflammation of the uterine appendages must be treated. Displacements must be corrected. Erosions of the cervix demand attention—usually some local astringent application like silver nitrate, and, empirically, the application of a 15% solution of cocaine to an apparently normal cervix has caused the vomiting to cease.

After the doctor has instituted the hygienic measures outlined, has carefully dosed his patient, has corrected all abnormal pelvic conditions—or very likely has found no such condition to correct—still the patient vomits. Clearly the situation is becoming critical, as the woman shows progressive weakness. We are passing from the consideration of an exaggerated condition, to the consideration of one pernicious. Our problem is to nourish for a time, variable in extent, a patient, whose stomach is incapacitated, ejecting food before it fairly arrives, and whose strength is taxed heavily by the persistent retching and vomiting.

It has been suggested that the use of the stomach-tube, passed down the œsophagus, but not into the stomach, relieves the vomiting which is, in reality, due to the passage of the food over certain hypersensitive areas of the œsophageal wall; or that the fauces and pharynx be sprayed with cocaine for the same reason. These methods do not appeal to me, though I have never tried either.

Clearly, we must feed our patient, if not by mouth, by the rectum. Environment will play a large part in determining the success or failure of this effort. With a patient under the care of an efficient nurse, either in a hospital or outside, much valuable nourishment and medication may be administered per rectum. I do not propose to go into the technique of nutritive enemata, but would call attention to the danger of too frequent repetition and excessive amount. The temperature and chemical reaction are also of importance. I have a case in mind of a patient, 18, who was suffering from pernicious vomiting, who took absolutely nothing by mouth for something like four weeks, retained every enema (three nutritive and one saline per day) with the result that her

nutrition and strength remained good during the period that she was under our observation. Unfortunately she was removed from the hospital and her subsequent history I do not know. In this connection let me call attention to the warning emphasized by many observers, that as a result of rectal feeding the flesh of these cases may be maintained, while the strength wanes, and unexpectedly the patient shows great prostration. This warning is, no doubt, of value, but I believe we can all agree that under favorable circumstances much can be accomplished by the use of nutritive enemata.

The employment of chloral and the bromides per rectum is certainly indicated in the cases where environment permits. Chloral gr. 1-20 and sodium bromide gr. 1-40 in hot peptonized milk $\bar{3}$ 155, once or twice in the 24 hours, with careful observation of effects will accomplish much more than continued, irritating medication by mouth.

Perhaps I am in error in mentioning dilatation of external os and cervical canal at this point in my paper rather than in connection with the other gynæcological methods of treatment. The fact that such manipulation of the os and cervix may induce abortion is my reason for so doing. Many of you have, no doubt, tried this measure. It would be very interesting to me to hear your results, both as regards the effect on vomiting, and on the gestation. After reading some of the literature and talking with men of some experience with dilatation, I believe it is of value as a late method of treatment.

I have tried to consider this subject in much the same order as one treats a case of vomiting of pregnancy, discussing, as we are accustomed to employ, the less strenuous methods first. If the vomiting is worthy of the name pernicious, one by one our efforts have failed, even dilatation not giving the desired results, and we are forced to consider that vital question of this whole subject, whether we are at last justified in emptying the uterus.

I do not feel in any measure competent to discuss the general indications for this step. In my limited experience, however, with this class of cases, I have never derived any help or comfort from perusing a long list of indications, that a dry tongue, a pulse of a certain rate, say over 120, a temperature above or be-

low normal, failure to retain food for a certain period, and increasing severity of other symptoms were a justification for interference.

Let me suggest, instead, the very great importance of knowing exactly the patient's physical strength, measuring that condition by such means as you personally can best employ. For the measure of strength must ultimately determine the presence of the crisis, and the indisputable need of aborting.

For the young man in medicine it is essential from every view-point, that he have the opinion of a consultant or two, before advising or attempting the sacrifice of fetal life.

In my reading I was impressed with the fact that the authors whose writings were published in the early '80's laid great emphasis on the expectant methods of treatment, and in one or two instances, even intimated that no case of uncomplicated vomiting of pregnancy needed interference. The sentiment of the writers of the past five years impressed me as more distrustful of the expectant treatment, and inclined to justify interference at an earlier stage. And I remember distinctly the advice of my lecturer: "Better err at first in emptying the uterus too early, than too late."

First, then, employ the expectant methods of treatment with energy and with confidence in an endeavor to tide the patient over the period of vomiting; but when these measures prove inadequate to check the emesis and maintain the strength, let us not fail to appreciate the extreme hazard involved in too long postponing our interference with the causal condition.

THE THIRD STAGE OF LABOR.

By Elliot B. Watson, M. D., Williamstown, Vt.

The third stage of labor, represented by the phenomena of uterine retraction, begins immediately after the delivery of the fetus. It includes the time occupied in the separation, and expulsion of the placenta and its membranes, and the final safe retraction of the uterus. Immediately following the birth of the child there is usually a gush of liquor amnii more or less mixed with blood, then comes a short period of rest, when nature seems to recover tone for the final effort. During this interval, if there is no immediate haste on account of the mother, the mouth, nose, and eyes

of the child should be wiped with a 50% solution of boracic acid.

When the pulsation of the cord has ceased, tie with sterilized ligature, first about two inches from the umbilicus, and again three or four inches nearer the placental end. In ligating, first tie a single knot, then passing the ends around the cord, tie a surgeon's knot, thus the ligature is not likely to slip. If the cord is very large, the gelatinous covering may be stripped off before ligating to prevent shrinking, and consequent hemorrhage. The second ligature is merely a precaution against imperiling the life of a possible second fetus.

Should the child be asphyxiated sprinkle the face, chest, and abdomen with cold water, or immerse the child alternately in hot and cold water. If this is not sufficient to resuscitate, try mouth to mouth insufflation, and finally, as last resort, the Byrd-Dew, or the Shultze method of artificial respiration. I think the former preferable, because other restorative measures can also be used at the same time. Persistent effort should be made, if necessary, as long as there is any perceptible beat of the heart. The cord having been severed, the child is handed to the nurse, who should wrap a sterilized towel around the abdomen to prevent infection.

Attention of physician and nurse should now be given to the mother. Here it may be well to emphasize the absolute necessity of perfect antiseptic conditions. While in the previous stages of labor, the uterine cavity has been protected, now intra-uterine examination brings the hand directly in contact with the abraded surface of the placental site, and any lacerated tissues, thus very materially increasing the danger of infection. Happily the retention of the placenta is not a frequent occurrence, and, unless there is marked relaxation of the uterus, serious hemorrhage, or other complication, there is no occasion for anxiety or haste in the delivery of the placenta. The natural process is the best. The general practice of administering ergot at this time is unnecessary and not devoid of danger.

With one hand on the fundus, note the condition of the uterus, and if the placenta is not already in the vagina, excite contraction by gentle massage, through the abdominal walls. In 15 to 30 minutes from the birth of the fetus, the uterus should be felt to rise in the abdomen, indicating that the placenta is now in the

vagina. Pressure on the fundus toward the hollow of the sacrum will express the placenta from the vagina, and out at the vulva. A spasm of the cervix may catch and hold the detached membranes for a little time. Carefully avoid traction. The cervix will soon relax and the liberated membranes drop out. Examine carefully to make sure that the placenta and membranes are all complete, and if there is any doubt explore the uterus, and remove any undetached remnants.

Should this natural delivery of the placenta not be accomplished within half an hour adopt Crede's method of external manual expulsion. Traction on the cord is never admissible at least, while the placenta is in utero.

Intra-vaginal, or uterine interference should be made only in case of retention, and then, only under strict antiseptic conditions. As a result of the abuse of ergot, or from abnormal adherence of the placenta, there may occur such a degree of retraction of the uterus, as to completely imprison the placenta within the uterine cavity, and we have "hour-glass" contraction. Relaxation of the stricture usually takes place voluntarily, if not, give a hypodermic injection of morphine, and atropine, also injections of ice-cold water. Forcible dilatation is seldom necessary, and should not be done except for alarming hemorrhage. In such case, to quote Lusk, "Introduce the index and middle fingers, with the whole hand in the vagina, to the point of constriction, then pressing the uterus downward the fingers are brought in contact with the placenta border. Now it is only necessary to draw a single colyledon into the canal to render the further extraction a matter of certainty. Under pressure of the soft placental mass the stricture relaxes slowly. By combining expression with slight traction, the delivery is surely accomplished.

Unlike other serious complications post-partum hemorrhage is not uncommon. It may occur at any time following the delivery of the fetus. Happening as it always does suddenly, without warning, and with such alarming symptoms, nothing more effectually unnerves the inexperienced, or unprepared physician or can more quickly relieve him of his patient. Fortunately, however, nothing yields so surely and promptly to proper treatment. Administer at once a hypodermic injection of ergot. If combined intra-uterine and external manipulation is not quickly effectual, do not waste time,

but resort to the sure means of controlling the hemorrhage, the intra-uterine tampon. This is not only sure but safe, provided perfect asepsis is observed. The cavity should be packed full with sterilized gauze, also the upper vagina. When removed, 36 hours after, if the uterus is still atonic, the cavity can be repacked after an antiseptic douche.

To promote retraction of the uterus after a post-partum hemorrhage, a cold compress over the fundus is beneficial, held in position by an abdominal bandage. Should profuse hemorrhage come from a lacerated cervix then the immediate operation is necessary. If the circular artery is not involved, and the hemorrhage slight, a vaginal tampon will suffice for the present.

Following the expulsion of the placenta there is always more or less loss of blood, the overflow of the uterine sinuses, which if not excessive is physiological. The empty uterus ordinarily undergoes retraction, the sinuses are closed, and any further loss is the lochia. Sometimes, however, the uterus fails to retract, or having done so again relaxes threatening serious hemorrhage, it is the general practice therefore, at this time, to administer one dram of ergot by the mouth. Previous to the delivery of the placenta ergot has no place. Now it can do no harm, and certainly helps to excite and maintain contraction, and hasten the process of involution. It is well to observe the rule of keeping the hand on the fundus for half an hour after the uterus has become contracted into a hard ball, or this may be done by an assistant while examination, and if necessary, repairs are being made for laceration of cervix, or perineum. The soiled articles are now removed from the bed, and clean ones substituted, the genitals cleansed with a 1 to 4000 solution of bichloride of mercury, a sterilized gauze pad applied to the vulva, and if thought best a puerperal bandage adjusted. Provided the whole delivery has been conducted according to our present aseptic methods, there is now, nor at any future time any need of the douche, so here ends the third stage.

In dressing chancroids, remember that wet dressings may be applied with beneficial results to the skin, but lesions on the mucous membrane are always to be dressed dry.

POST PARTUM HEMORRHAGE.*

By C. E. Griffin, M. D., Fair Haven, Vt.

The flow of blood that usually accompanies the separation of the placenta may be so excessive as to produce marked constitutional symptoms in the obstetric woman. It is then called post partum hemorrhage, because it follows the birth of the child. The hemorrhage is always occasioned by uterine inertia. The uterus will be felt to be in a relaxed and flabby condition, so that you can scarcely define its limits; or if it contract and harden for a few seconds it will speedily return to its former condition. In all cases where there is any reason to apprehend hemorrhage, the pulse should be frequently felt and the uterus examined—the patient should be cautioned about informing the attendant should she feel any discharge escaping; and the napkins should be removed and inspected.

There is to the practitioner of obstetrics, perhaps, in the whole list of accidents that are liable to occur to the lying-in-woman, nothing more appalling than those terrible cases of flooding after labor, in which the woman's life is quietly, speedily and surely ebbing away, as is indicated by the deathly pallor, hurried breath, the cold clammy waxen skin, the intermittent and sometimes absent pulse, and the rapidly recurring or continuous fits of fainting, from which she only recovers long enough to make a few gasps, utter a short, feeble hardly audible sentence, and again lapse into a swoon that not unfrequently, alas, closes her earthly career. It is in such cases that all see the necessity of a clear-witted cool-headed medical attendant, who has at his command, and possesses the courage to apply without delay, all or any means that may be brought to bear in benefiting or saving his patient.

CLASSIFICATION.

Floodings after delivery present a variety of symptoms and hence may be divided, according to their manifestations, into several classes. Thus we have:

1. External hemorrhage.
2. Concealed or internal hemorrhage.
3. Primary hemorrhage.
4. Secondary hemorrhage.
5. Hemorrhage of various degrees, namely first degree, second degree, and third degree.

1. When the flow meets with no resistance, but passes the vulva in sparing quantities, again in alarming gushes it constitutes external hemorrhage.

2. When owing to some obstacle encountered at the cervix, the blood which flows from the uterine vessels is held in utero, we term it concealed hemorrhage.

The Princess Charlotte died five and a half hours after a labor that had lasted fifty hours, the child being still born. The hemorrhage was internal. The autopsy revealed a healthy condition of the organs, but the uterus, filled with blood, reached above the umbilicus. Of course an external hemorrhage reveals itself, and an internal bleeding will be readily recognized by the hand of the obstetrician placed upon the patient's abdomen, for thereby he finds the uterus greatly enlarged, relaxed, and probably its boundaries not easily defined.

Unfortunately, authors differ as to the boundary-line between primary and secondary hemorrhage; some including under the latter a bleeding that begins a few hours after labor, while others advance the limit to twenty-four hours or even some days. However, it is necessary for classification that there should be a dividing line, and I believe most authorities denote those hemorrhages occurring in the first twenty-four hours as primary, all the others secondary. Hemorrhage of the first degree is that wherein but little blood is lost, though for a moment it may flow in a stream. This occurs in perhaps 10% of all labors.

Hemorrhage of the second degree is that which comes in profuse gushes, and does not yield at once to abdominal pressure, but requires other measures for its arrest, and even afterwards manifests a disposition to return.

Hemorrhage of the third degree is that which includes dangerous bleedings, wherein the loss is excessive and the prostration profound.

Ahlfeld's statistics as taken from Hunt's paper, considers at length the hemorrhages during the third stage of labor and their effect on the woman. He says that hemorrhages are both over and under estimated, the first leading to too early and often dangerous interference, the second to the neglect of the bleeding which may proceed to the injury of the patient.

Ahlfeld delivers his patients on a bed with a hole in the center. A large funnel is placed in this opening and all the blood escaping from

*Read before the Rutland Co. Medical Society.

the genitals collects in a measuring glass underneath. The attendant watches it collect in this glass and interferes only when the amount is 400 grams (13 oz.) In 1,467 labors there was an average loss of 436 grams (14 oz.) In 591 pathological deliveries there was an average loss of 505 grams. Multipara loses more blood than primapara, and the loss increases with succeeding labors. The same relations exists between normal and pathological labors in the two, multipara losing more blood than primapara. The cause of the increase in the hemorrhage in successive labors is not so much the multiparity as the increasing size of the child, the larger the child the greater the hemorrhage, so that if an infant weighs more than eight pounds a blood loss of 20 to 28 ounces is not abnormal.

The cause of this increase in the hemorrhage Ahlfeld finds in the increased size of the placenta which he proves by tables showing its weight and size. The most hemorrhage and the most cases of hemorrhage occur in the first hour after delivery. In 6,600 labors, 159 forceps (mostly low) operations were performed, and there was an average loss of 664 grams (20 oz.). There were 138 cases of version and extraction, the average bleeding being 710 grams (23 oz.). Ahlfeld studied carefully the effect of the loss of blood on the general condition of the puerpera. As the result of his observation he concludes that for a normal healthy parturient a loss of 1,000 grams (31 oz.) is not serious and not to be feared, but that this is not true for decrepit and weak individuals.

The effects of hemorrhage vary with the nature of the patient and the rapidity of the blood loss. If it is a slow hemorrhage the loss is partly made up by absorption from the tissues and from liquids administered in various ways.

In a strong, healthy parturient no symptoms of anemia will appear till after 1,000 grams are lost. The first sign is rapidity of pulse, then pallor of the skin. These always occur when the loss reaches 1,500 grams (3 pts.). When the amount exceeded this figure other symptoms appeared—cold extremities, cold sweat, vomiting, yawning, air hunger, thirst, dizziness, faintness, anxiety and intermittent pulse. In some cases death occurred with such a hemorrhage. When the bleeding rose to 2,500 grams (5 pts.) there occurred fainting, col-

lapse, unconsciousness, or excessive restlessness, muscular cramps, involuntary bowel movements, asphyxia and paralysis of the heart.

In 6,000 labors, 159 cases occurred when the hemorrhage was more than 1,500 grams. In 132 cases when the loss varied between 1,500 and 2,000 grams (3 to 4 pts.), the symptoms of anemia varied in intensity, all cases showing rapid pulse, 22 cases cold extremities and sweat, 14 cases vomiting, thirst, yawning, air hunger, and 11 cases were anxious with dyspnea and fainting. In four of these cases collapse and death. In 23 cases of the loss of 4 to 5 pints of blood the symptoms were mild, in 7, as rapid pulse and beginning pallor; in the rest the symptoms were ominous, and in 1 case death ensued.

In the 5 cases of death from hemorrhages, a cervix tear was causative in 4. In one case a woman survived a loss of 5 pints of blood, and the pulse did not exceed 92 beats per minute. In another case, with a loss of 3,250 grams (6½ pts.) in 12 hours, the patient's pulse varied from 80 to 92 per minute. Bierfreund has claimed that 3,200 grams is a necessary fatal loss in the human adult, and 40 to 53 grams in the new-born child. Ahlfeld believes that a healthy gravida may lose up to 3,500 to 4,000 grams (1 gal.) before the fatal termination occurs, but says that this question needs investigation.

During the puerperium the pulse rate is higher than usual, certainly for the first few days. The temperature is affected by the hemorrhage. The danger of infection grows with the amount of bleeding. The milk secretion is not much affected, most of the women nursed their children, and 50% of the latter had regained their birth weight in ten days.

SYMPTOMS.

Frequency of pulse is often a herald of bleeding. Whether before or after the expulsion of the placenta, the obstetrician finds the pulse rising instead of falling and though the patient's general condition may appear favorable and the uterus appear well contracted, he will redouble his watchfulness, seeking to avert the threatened peril or to be prepared promptly to meet its coming. By abdominal palpation the uterus instead of being felt hard, globular, and of the size of a child's head, will be

felt large and soft as an empty bag, with no disposition to contract. The uterus is paralyzed. The woman is losing a much larger quantity of blood than in normal labor. The stream of blood increases, the woman becomes blanched and cold; she sighs and yawns; her breathing is shallow; she calls for more air and faints; there is no perceptible pulse at wrist.

The same symptoms may also be present if the hemorrhage has become internal on account of the external flow being prevented by large clots plugging the os internum. As the blood fills the uterus the patient experiences a sensation of great heat at the lower part of abdomen, and all the other symptoms increase in severity. In case the hand is kept properly applied to the abdomen, and a clear uterine outline insisted upon, there is little likelihood of dangerous blood loss. Bad examples of hemorrhages are met in those cases wherein abdominal pressure is neglected or the bleeding begins a considerable time after labor, when watchful care has ceased.

TREATMENT.

In the treatment of the aforementioned conditions, it is of immediate importance to lessen the flow of blood and to excite uterine contraction. In case of uterine inertia after the birth of the child and before delivery of the placenta, measures should be taken to excite the contractions of the uterus by friction, or as H. Fritsch says, by gently rubbing with a circular motion over the fundus of uterus for ten to twenty minutes after delivery, taking care not to detach by hand the adherent placenta, else hemorrhage will follow. If the placenta then becomes partially or wholly detached, profuse hemorrhage will occur, owing to the imperfect contraction of the uterus. Whether the placenta be wholly or only partially detached, if there be inertia of the womb a profuse hemorrhage comes on as a consequence. Then the indication is to act very promptly to save the patient. The whole hand should be introduced to the fundus of the uterus to empty it of placenta and clots; the hand should be kept in, and the ends of the fingers be made to titillate the internal surface of the uterus. The uterus will then be felt to contract, if not sufficient, retain the hand in utero, keep up the hot douche, which is begun on the introduction of hand, order hypodermics of ergot and atropia,

and if patient is much exhausted, twenty drops of sulphuric ether (as originally advised by Hecker) should be injected deeply into the thigh, three such injections being made. In a short time the uterus grasps the hand, firm pressure being kept up on the abdomen, the placenta is removed with hand behind it. If there is much adhesion of the placenta, separate it with the fingers, taking care lest the uterine tissue should be perforated by too forcible handling. After delivery of placenta there is generally a renewal of the hemorrhage, which should be controlled by hot water irrigation 112° to 120° F. if this does not act promptly use hot vinegar in the place of water, either in syringe or as Penrose suggested by saturating a piece of gauze or cotton in vinegar, carrying it into the uterus with the hand and squeezing the vinegar over sides of uterus. He says that the effect is magical. The relaxed and flabby uterine muscle instantly responds. The organ at once assumes its gizzard like feel, shrinking down and compressing the operating hand and in the vast majority of cases all hemorrhages cease instantly.

Another method of arresting uterine hemorrhage is himamnal compression, the obstetrician introduces one hand into the vagina and passes three fingers upto the posterior vaginal vault, so that he can exert firm pressure upon the posterior part of the cervix; the other hand, placed upon the patient's abdomen, grasps the fundus and the posterior wall of the uterus, drawing them forward, the vaginal fingers at the same time pushing the cervix in the same direction; thus the uterus is antifixated and firmly held so that hemorrhage for the time is impossible.

Fritsch speaks favorably of what he calls the "rational bandaging of the abdomen." The hands are passed between the recti muscles to the back of the uterus, and the contained blood is expressed. The uterus is raised as high as possible and forcibly antifixated and compressed against the posterior and superior surfaces of the pubes. The abdominal walls are easily forced behind the uterus to the pelvic brim, and the resulting pouch of skin and muscle is firmly packed with folded towels or cotton pads until the uterus is immovably fixed against the pubes. A bandage or towel should be applied over padding, thus forcing it behind and toward the pelvic inlet. A bandage is then applied over uterus to compress its walls,

and may be left twelve hours. The following advantages are claimed for this method: 1. That compression of the abdominal cavity forces the blood to the upper half of the body, even more effectually than compression of the abdominal aorta and bandaging the legs. 2. Hemorrhage is impossible, on account of the pressure on the uterus, obliterating completely the uterine cavity. 3. Hæmostasis is immediate. In plugging the uterus with tampons large quantities of blood are frequently lost. 4. No time is lost in rendering the hands aseptic, as no internal manipulations are necessary. 5. When the pad is once placed no further disturbance of the patient is necessary.

Post partum hemorrhage from cervical lacerations is now more common than formerly, because of the practice of version and extraction in eclampsia and placenta prævia before the os is dilated. A laceration may be looked for when resistance to extraction suddenly yields, or if hemorrhage immediately follows the birth of the child and the uterus is well contracted. A cervical laceration is always on that side in contact with the occiput, and is usually anterior to the uterine artery, though this vessel may be torn through if there are parametric adhesions. Fritsch says it was formerly his practice to suture cervical lacerations immediately, but many necropsies have convinced him that this is not advisable. In deep lacerations extending above the supra-vaginal portion of the cervix any attempt to sutures involves danger to the ureter, and is therefore difficult and probably useless. In plugging lacerations where a large vessel is torn the hemorrhage is not arrested, but may spread between the layers of the broad ligament or along the course of the uterus. During plugging the hemorrhage continues. Fritsch recommends "double compression" as the best method of controlling hemorrhage from cervical lacerations. In this procedure the placenta is removed, then standing on left side of bed, the uterus is grasped in the right hand of the accoucheur, antifixed, and pressed downward into the pelvis as far as possible; this expresses the coagula. The two labia majora are now seized between the fingers of the left hand and forced up between the rami of the pubes. The cutive pelvic floor is thus raised as high as possible into the pelvis, while the labia are compressed tightly so as to allow no blood to escape externally. The parts are

then firmly compressed between the two hands as they grasp them. Pressure is made downward in the middle line, and should continue one-half to three-quarters of an hour or even longer. When the hands are removed—first the right, then the left—the uterus usually remains deep in the pelvis, and there is no further hemorrhage.

Fritsch claims to have arrested most alarming post partum hemorrhages due to laceration by this method in a few minutes. The advantages claimed for the method are: 1. There is no danger of infection, the entire treatment being extra vaginal. 2. The loss of blood, which would occur in suturing or plugging is obviated. 3. It is a rational method, as it obliterates the spaces into which the blood would flow. 4. No after treatment is required.

The tampon is by no means a new way of treating uterine hemorrhage, but its somewhat recent recommendation by Duhrssen has revived its use. The vaginal tampon is never used except possibly in tears of the cervix, and then but exceptionally. Twenty per cent. iodiform gauze is the material most often used. Playfair has said that the puerperal uterus will hold two ball dresses. This being true, one need not be astonished at the quantity of gauze required—three to five strips of gauze two inches wide and ten feet long will be required to effectually control hemorrhage in the uterus, and though packing with gauze is highly advocated by some, I would use it only when other attempts had failed, as the uterus may fail to contract and internal bleeding still continue, or its removal sometimes renews the bleeding. The treatment is neither certain nor safe and besides is not physiological, for the uterus cannot be completely contracted while the gauze is in it. Certainly the cases are very rare in which this treatment will be required.

REPAIR OF THE LACERATED PERINEUM.

By A. C. Bailey, M. D., Randolph, Vt.

It is needless to invade the domain of gynæcology to explain the serious after-results of neglected perineal and cervical lacerations. During childbed, open wounds in the course of the genital canal are a source of danger from septic infection, and, even when kept clean by

frequent carbolized douches, retard the progress of recovery. The art of closing lacerations of significant extent by suture deserves, therefore, to be acquired by every obstetric practitioner. While in hospital practice the results as regards immediate union are widely variable, and often, in consequence of atmospheric conditions, are negative, in properly conducted labors occurring in private practice, where the hygienic conditions are favorable, failure to obtain union is a rare exception.

Before proceeding to a description of the symptoms and treatment of the lacerated perineum it would be well to recall somewhat briefly something of the anatomy and function of the perineum. The perineal body is not a mere mass of inert connective tissue, but is a wedge-shaped body consisting of muscles, connective tissue, fat, vessels, and nerves. The muscles entering into its formation are the sphincter ani, constrictor vaginae, transversus perinei, and levator ani. The most important function of this body is the support of the pelvic organs. Taking the muscles of the pelvic floor in the aggregate, they form one complete diaphragm of muscular tissue which fills the pelvic outlet. By this arrangement the rectum and vagina are held in position, and their terminal ends controlled in the performance of their function. When the perineum is destroyed by laceration or rendered incapable of performing its duty because of local or general causes, as senile involution, malnutrition, and the like, more or less extensive downward displacement of the pelvic organs must occur, unless these organs are held in place by pelvic adhesions or their prolapse is prevented by maintaining the recumbent position and leading a life of minimal activity. There is quite a variety of injuries of the pelvic floor seen in practice, but laceration in the median line of the pelvic floor, is the injury most frequently sustained during parturition, and the only one of which we shall speak at this time. Laceration during parturition is favored by any condition which renders the perineum less elastic. These are particularly advanced age, i. e. past thirty years at the time of the first delivery, and chronic vaginal and perivaginal inflammation, most commonly gonorrhoeal or syphilitic. Laceration is also favored by excessive development of the fetal head, its descent in an abnormal position, or its too rapid descent.

The laceration usually starts in the median line or very close to it, at the posterior commissure of the vagina or close to the posterior column, and continues on one or both sides of this. According to the depth of the tear, lacerations are divided into two classes, the incomplete and the complete. In the former class are included cases in which the sphincter ani is not torn through. These cases vary from the almost inevitable laceration of the mucous membrane of the vagina to almost complete division of the anal sphincter. The distance to which these tears pass up the posterior wall of the vagina also varies greatly. The complete lacerations are those in which the sphincter ani is torn through, and usually the tear extends some distance up the anterior wall of the rectum.

When a fresh laceration is left to itself, cicatricial bands, irregularly connecting the borders of the tear, are formed. The edges of the wound are drawn upward by the levator ani, and the ends of the divided sphincter ani are often marked by a slight depression on either side. All practitioners are now agreed that in all cases, except where the laceration is very superficial, the tear should be sutured at once.

Although spontaneous cures may occur, and some authors claim that this may happen even in cases of complete laceration, the chances of recovery are too small and the possible results of delay are too serious to warrant leaving a cure to nature, especially as the primary operation adds no danger at the puerperal period. These lacerations should be treated by exactly the same methods which are used in the treatment of lacerated wounds of other parts of the body. Corresponding parts should be united by sutures which are passed deeply enough to secure union of the deeper parts and in sufficient numbers to secure accurate approximation. This procedure is often difficult because of the swollen, edematous condition of the parts, the abundant hemorrhage, and the exhausted and excited condition of the patient. The less extensive lacerations will require skin sutures only. The object in treating these injuries should be to restore the lacerated muscles by securing union of their severed fibers. In the ordinary or most commonly recognized injury, laceration in the median line down to, but not through, the sphincter, the immediate treatment usually employed is to close the

wound with sutures at once, or to cleanse the wound from blood clots and coapt the parts, carefully bind the patient's limbs together, and trust that union will follow. The latter plan is sufficient, if the wound be of slight extent. If, however, the rupture extends to the sphincter ani, and involves the entire perineal body, the vagina is left without support, rectocele or cystocele ensues, the uterus sinks downward and becomes displaced backward, and in the end prolapsus is apt to result. Only a very credulous person really believes that he has witnessed union by first intention in extensive ruptures, as the result of tying the knees together and enjoining rest upon the side. The action of the transversi-perinei muscles tends to draw the torn surfaces apart. Moreover, the necessity of separating the knees in passing urine, and to enable the nurse to cleanse the genitalia, makes it impossible to keep them in contact for any lengthened period. To the immediate operation there is no valid objection. It is not difficult, it is not extremely painful, and its performance, as a rule, diminishes the risk of infection and shortens the puerperal period. While it is true that the object aimed at may not be attained, it must never be forgotten that the purpose of the operation is the union of the deeper and muscular parts rather than of the skin and mucous membrane. In private practice, however, failure is the exception. The argument that the operation is in itself a confession does not deserve discussion.

The suture material varies according to the individual preferences of the operator, but probably silk or silkworm gut is more generally used than any other material, and they prove most satisfactory. In my opinion the silk suture properly prepared is by far the best for the immediate operation, even when the perineum is torn its whole extent, or down the median line to the sphincter. In lacerations involving the anterior wall of the rectum, I prefer the silkworm gut, for it is safe and will last just about long enough to permit union to take place before being absorbed. Then it does away with the necessity of removal which is always painful and attended by more or less danger of disturbing the granulations of the perineum. Silver wire, which at one time was the only suture which could be relied upon, has been superseded by others that are vastly superior for this purpose. It is impossible to keep the parts clean after confinement with-

out causing pain while the ends of silver wire sutures are projecting from the parts. The silk sutures save the patient much discomfort, and are not in the way of the means necessary to be used to keep the parts clean.

For the performance of the operation the patient should lie upon her back, with her hips well over the edge of the bed. Two assistants to hold the knees are of great convenience. In operations requiring the introduction of not more than three or four sutures, anæsthesia may be dispensed with. In lengthy operations, such as are necessitated by lacerations extending up the posterior vaginal wall, ether should be given in place of chloroform, and its administration should be intrusted to an experienced person only, for anæsthesia after labor calls for the exercise of extreme caution.

The wound should be prepared by carefully washing away blood and clots with warm carbolyzed water, and by removing shreddy portions with scissors. With the ordinary perineal needle or the Peaslee's needle, the first suture should be passed just in front of the anus. It should be entered and brought out about a half-inch from the ruptured borders. The others should follow at from one-third to one-half inch intervals. Each suture should make the entire circuit of the wound. This can be readily accomplished by guiding the point of the needle through the residue of the perineal body with two fingers in the anus and with the thumb upon the vaginal surface. To secure a stronger hold for the last suture, the needle should be made to enter the vagina above the upper angle of the rent, and the suture should be made to traverse a portion of the undenuded tissue before completing the circuit. In closing the wound, great pains must be taken not to twist the sutures too tightly, as in that case they are apt to cut out or to produce sloughing.

Sometimes, in rents extending through the sphincter ani and the recto-vaginal septum, the simple perineal sutures will effect a satisfactory union. As a rule, however, it is desirable to adjust the edges with great care, first closing the rent upon the rectal side, then bringing together the split in the mucous membrane upon the vaginal side with transverse sutures, and finally bringing the lower borders of the perineum together by a separate operation. This disposition is the so-called triangular suture of Simon. The length of the operation

renders necessary an anæsthetic, which should be ether rather than chloroform. The disgusting condition of a patient with laceration through the recto-vaginal septum, where the healing process has been the result of granulation, may, and I think does in some cases, justify the attempt to secure immediate union, but I think they should be *selected* cases. In cases where the labor has been prolonged and tedious, and the woman is weak and exhausted, the rent in the recto-vaginal septum is considerable, I think it is better to wait from four to six weeks, until the woman has regained her strength, and the parts have assumed their normal condition, then operate with a good prospect of success.

The after-treatment consists in the careful protection of the wound surface from urine by the use of the catheter. After a few days volutary urination may be allowed, and the parts afterward carefully washed with antiseptic solution. The vulva and perineum should be kept covered with antiseptic dressing. I prefer the moist iodoform gauze applied over the injured skin, underneath the napkin, and changed as often as necessary. The bowels should be kept free by laxatives when needed. The patient should remain in bed for at least two weeks, and throughout the entire time the thighs should be tied together as a reminder. Perhaps the best treatment, after all these things have been done, is to let the wound alone for about two days, trusting that during that time it may become sufficiently protected, by a coating of fresh lymph, to resist the subsequent discharges. After the lochia begins to decompose, the frequent use of the vaginal douche is advisable, and should be continued until the union is completed.

CARE OF THE NEWBORN INFANT.

By C. H. Burr, M. D., Montpelier, Vt.

The fetus having been separated from its mother though ligation of the umbilical cord, assumes an individuality which requires special attention. First among its requisites, is attention to the eyes. The method will vary according as we are satisfied or not that the woman is free from specific taint. A good routine treatment is to wipe off the lids with a piece of sterile gauze or cotton soaked in a saturated solution of boracic acid, irrigating the conjunc-

tival surface with the same solution, when if the palpebral surface of the lids is covered with the vernix caseosa these are everted and washed off.

The eyes having been attended to the next step is to bathe the child. The temperature of the bath should be slightly in excess of that of the room, as a rule 80 to 90 degrees, should be selected. The first step is to remove the vernix caseosa and blood with which the infant is covered to a greater or less extent. This is accomplished by greasing the surface with some material such as sweet oil or vaseline, the precaution being taken not to allow any of the material to get into the eyes or stump of the cord. This accomplished the infant is placed in the bath so that the entire surface is covered, with the exception of the head, it is then soaped and washed until the surface of the body has been cleansed, when it is removed from the bath and thoroughly dried. The flexures are then dusted with bismuth powder to prevent chafing its integument.

Next examine the body for defects, the natural openings are investigated, and fingers and toes are counted, since one of the first questions of the anxious relatives will be, as to whether the child is perfect or not. If imperfections are discovered, it is wise not to tell the mother since the nervous anxiety might complicate her convalescence, but the father or some near relative should be told.

The cord should now be dressed, this matter is usually left with the nurse, but it falls within the province of the physician, since infection at the umbilicus is a frequent cause of sepsis of the newborn. A pledget of sterile absorbent cotton or gauze is wound around the cord; and this is left in place until the cord drops off. If the cord has been properly tied there is little danger from secondary hemorrhage, except in case of bleeders. After the cord has been separated it should still be treated as a wounded surface, dusted with bismuth powder and a firm pad applied over it until cicatrization has become firm, or in order to avoid the possibility of umbilical hernia.

Regarding dressing the child, all that we as physicians can do, is to suggest forcibly that the infant shall not be too warmly clad, avoiding excessive weight.

After the woman has rested for an interval after delivery it is advisable to apply the child

to the breasts, for the purpose of accustoming the nipples to lactation, and giving the child the colostrum in the breast, and by reflex irritation firm contractions of the uterus are produced. Before applying the child to the breast the mouth should be washed out with boracic acid solution and the nipples should be so treated before and after each nursing. On appearance of the milk the infant should be put to the breasts at intervals of two to three hours, and kept up until the third month. During the interval between the nursings the child should be given boiled cold water to drink. Frequent feeding or rather overfeeding will be found the cause of green stools or colic.

Regularity in nursing, sleep, bathing, and a sufficiency of fresh air and water are the keystones which lead to the development of a healthy child. In the few minutes allowed for this paper, I have endeavored to give you an outline of the attention and care to be given to an infant born at term and in sound condition.

THE PRIMARY FOCUS OF ARTICULAR RHEUMATISM.

BARKER (*Brooklyn Medical Journal*, Dec., '06) in an article on 'The Treatment of Certain Chronic Infectious Processes, writes as follows of arthritis and endocarditis: It seems tolerably clear now that the majority of the so-called acute and sub-acute rheumatisms, many of the so-called chronic rheumatisms, and at least a part of the cases of arthritis deformans are instances of infectious polyarthritis.

As a result of a primary focus of infection situated somewhere in the body, a few bacteria get into the blood and are carried to the joints, where they set up the arthritis. If the primary focus of infection is cured and does not recur, there may be only one acute attack of arthritis, but where the primary focus persists and undergoes recurrent exacerbations the joints may be repeatedly metastatically infected.

One very practical point in this connection has resulted, and that is this: we have in such cases to seek especially for the primary focus of infection, and having found it, we must get rid of it in order to prevent further metastatic infection. It would appear that in a considera-

ble percentage of the cases the primary focus of infection is in the throat, particularly in the palatine tonsil. Even where the tonsils are atrophic and superficial examination reveals no obvious lesion, it is sometimes found that if the tonsils are extirpated the patients get well, and examination of the extirpated tonsils reveals local infection. The series of cases recently studied by Goldthwait, and operated upon by Goodale, is very convincing.

If the palatine tonsils are not the seat of the primary focus of infection, the pharyngeal tonsil should be carefully examined, as should also the gums, since in certain instances a pyorrhea alveolaris (Rigg's disease) appears to be responsible for the metastatic infection.

We have long had a paradigm of these metastatic infections before us in the form of gonorrheal arthritis, the primary focus of infection being the urethra or prostate, but we have been slow to recognize that other forms of polyarthritis are also metastatic in origin and dependant upon the existence of some primary infected focus. In women the uterine canal or Fallopian tubes may be the seat of the local infection which is responsible. Occasionally we have to suspect an otitis media or infection of one of the para-nasal sinuses as the initial disease. Now and then bronchial or pulmonary infection or infection of the mucous membrane of the intestine may be the primary process. A large part of our success in treatment of these chronic forms of arthritis will be dependent upon our ferreting out the primary focus of infection and getting rid of it.

Since my attention has been called to the importance of the conception of infection in the etiology of polyarthritis, I have been turning over in my mind, also the many cases of endocarditis which we see in young people, cases in which the endocardium may be repeatedly attacked, sometimes with complicating pericarditis. It seems to me probable that we have to regard such cases as similar instances of metastatic infection from some primary focus of infection. We all know how common it is to have an endocarditis associated with a polyarthritis, and how common it is to meet with an endocarditis as a complication of various local pyogenic infections. In a great many instances the endocarditis is secondary to a primary tonsillitis and the recurrences of the endocarditis are associated with a recrudescence in the throat. I believe that we shall be able

to do a great deal to prevent the progress of endocarditis in young people. Once a joint has become infected or the endocardium attacked, we shall make it our duty to search for the primary focus and treat that infection, and in many instances, especially where the tonsil is involved, we may without great danger excise the primarily infected organ and thus prevent a recurrence of the attacks.

In very young children one might hesitate to remove the tonsil for fear of some protective function or of some function of internal secretion necessary to the welfare of the child. In later life, after the tonsils have become atrophic, such danger need scarcely be considered. In view of the fact that the palatine tonsils are only a part of Waldeye's ring, and inasmuch as the lingual tonsils are never removed by operative procedure, it would seem likely that the tonsillar function of internal secretion would be sufficiently carried on even in young children after the palatine tonsils have been excised. * * * * Physicians have for a long time been familiar with the close relation which exists between tonsilitis, rheumatism and endocarditis, but action has scarcely kept pace with knowledge. The time has come when an acute tonsilitis should always be regarded as a very serious infection, owing to the possibilities of metastatic infection therefrom. No case of acute tonsilitis should be considered as trivial.

The patient should be placed in bed at once and active measures taken to combat the local infection. Once metastatic infection has occurred, the quicker we make further metastatic infection from the same source impossible, I think, the better. I believe that from now on physicians are going to be able to prevent a great deal of polyarthritis, endocarditis, and perhaps acute and chronic nephritis, by recognizing this conception and acting promptly upon their convictions. It is the general practitioner who meets with these primary infections in the tonsils and elsewhere, and it is he to whom the great majority of patients must look for the recognition of the danger and judicious prophylactic advice.

MARINE HOSPITAL SERVICE.

A board of officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B Street S.E., Washington,

D. C., Monday, April 15, 1907, at 10 o'clock A. M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination of the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive \$1,600, passed assistant surgeons \$2,000, and surgeons \$2,500 a year. When quarters are not provided, commutation at the rate of thirty, forty, and fifty dollars a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, 10 percent in addition to the regular salary for every five years' service up to 40 per cent after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address "Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C."

Vermont Medical Monthly.

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EDITORIAL.

That the question of pure milk is a great problem in the cities has been evident for a long time. The reasons for this are very obvious. The increased amount required to supply the growing population necessitates bringing much of it a long distance and sequent time which must elapse between production and consumption often means that a milk unimpeachable at the start will be dangerous as a food before the consumer gets it. These are difficulties which can only be minimized, never entirely overcome. Yet with all these conditions it seems that the city is getting a smaller percentage of impure milk than is supplied to our towns right here in the center of a dairy community. A large proportion of the samples examined at the State Board of Health Laboratory are found to be well within standards in richness but most of them are dirty. In no other food which is used for human consump-

tion is the presence of dirt and its attendant bacteria of so much importance. Used in an uncooked condition and relied upon as the staple diet of infants and invalids every specimen of dirty milk is a direct menace to life. This condition of the milk can only be the result of unsanitary barns and careless handling of the product. Conditions which are entirely remediable. Any one who is familiar with the average Vermont dairy farm knows that the dirty stable is the rule rather than the exception.

The profits of the dairy are small and it is hard to persuade the farmer to go to the necessary expense and take the necessary trouble to secure a perfectly clean milk when his neighbor who does not do so gets an equally good price. In certain towns of other states improvement has been striven for by giving certificates of excellency where everything is kept in sanitary condition. Such certified milk usually commands a slightly higher price as it properly should. We trust here that the publication of the faults will effect some improvement for we have faith to believe that the Vermont dairyman is willing to do his best when once his attention is called to the need of improvement.

"Another osteopathy bill is waiting, we trust, for annihilation at Albany. There ought to be little delay in obliterating it, for it runs counter to common sense and the trend of scientific advance. We have no prejudices against osteopathy as a method of treatment; it may work many cures, and again, like the best remedial devices thus far contrived, may often fill. But its success or failure is not the point at issue. The osteopathists are fighting at Albany for permission to practise their profession without being required to pass the usual examinations in *materia medica* and therapeutics required by the present laws. They desire to have a separate board of osteopathic examiners conducting examinations on topics regarded by the profession as important.

In other words, their ambition is to have a status equal to that of ordinary physicians, but at the same time to be independent of the latter.

The impropriety of these demands should be apparent to everybody who is acquainted with the present condition of the medical and surgical sciences. As there is not a single branch of either which is not changing almost weekly, it is preposterous to maintain that the osteopathist has reached so high a stage of perfection that he can neglect the rest of the medical world and its labors. And, again, in view of the fact that every department of science contributes valuable information to many others and receives in turn much from them, it is foolish to allow a specialist in one narrow field to dodge the task of learning the achievements in contiguous domains. In every science and business there are many things which have to be known in full detail, even though they are almost never dealt with in daily practice. This is so conspicuously true in medicine and surgery that the osteopathists' bill is worthy of a decisive defeat."

The above clipping from the N. Y. Tribune present the weak points in recent osteopathic legislation in so fair a manner that we cannot resist copying it. The medical profession dealing as it does with human life should always be striving toward higher goals and it is inconceivable that a thorough knowledge of all branches of medical science can be otherwise than for the best interests of its members whatever their method of correcting abnormalities of structure and function. We believe in the broadest liberality toward individual belief and are perfectly willing to admit that there may be much that is true and valuable in every school of medicine, but for any one school to shirk the highest requirements in regard to a knowledge of these essentials, the foundations of all medical knowledge, concerning which there can be no two opinions, is all wrong and for any school to seek by legislative enactment freedom from these requirements is a confession of charlatanism. If there is anything in osteopathy it certainly can rest

on no solid foundation other than anatomy, physiology, chemistry and pathology and why should the osteopaths object to meeting the same standards as other schools of medicine in regard to these points which are common facts and in no way theories? When their graduates will submit to the same examinations as the regulars, eclectics and homeopaths in the fundamental scientific branches, anatomy, physiology, chemistry, obstetrics, surgery and pathology, then we say give the osteopaths an equal chance with any other school and not till then.

We hear much of the fresh air treatment these days and perhaps some of this is extreme. The history of medicine shows that medical men are wont to fall into this error, but no one can doubt that the crusade for better air in our homes, churches and places of amusement as well as our hospitals is bound to be productive of good. Progress always comes through enthusiasts. The application of the out-door treatment like any other should be used with judgment. There are of course and always will be some cases which cannot stand the rigor of out-door weather in our northern climate but it is inconceivable that there can be any case which would be injured by PURE air.

An article by Dr. Gilman Thompson on the Fresh Air Treatment in the Hospital Wards, published in the Medical Record of Feb. 9th treats the subject in such a reasonable and candid way and draws such fair conclusions from an application of this principle in treatment that we have reviewed it in this number. Lack of space prevents the publication of the entire article.

Among the quasi-medical thorns in the flesh with which physicians are scourged, the one called the "Viavi treatment" has a method as unique as it is pernicious. The "treatment" is apparently intended especially for gynecolog-

ical affections, but its agents do not hesitate to exploit it for the alleviation of any disease the flesh is heir to—provided the one affected has money to pay for the service. The representatives of the Viavi Company are women, who as one of their main attributes, must be active church workers. The usual method of foisting this cure on a town, is for the agent to identify herself with a local church, and then arrange a meeting for ladies, held in the church parlors, at which an address on health is given. This, of course, is in such form that every woman present finds that she has something not quite right in her make-up. Having implanted this impression, the agent takes good care to foster it in the susceptible ones, and using her cloak of righteousness as a shield, she proceeds to visit the church women and persuade them that medical treatment and physicians are failure and frauds, but that Viavi is a sure cure for whatever real or imaginary disease the dupe may have. In this way she inveigles from eight dollars (the smallest package is \$8) to \$100 or more, and leaves in exchange a box of tampons, a can of cerate, and a bottle of liquid which is to be taken in drop doses, one or all, according to the susceptibility of the buyer. With these three packages the afflicted one is now able to cure all manner of anatomical, pathological or surgical disparities, be it misplacement, cancer, laceration or dyspepsia. Packages of these "treatments" recently put out did not have labels complying with the pure food and drug law as to formula and alcoholic content, and it is questionable how long such a thing will be allowed to flourish. Meanwhile it is a poor commentary on the churches and clergymen that these people are permitted to make use of the church and its influence to further their scheme.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. W. L. Wasson of the State Hospital for the Insane at Waterbury, has begun a course of lectures on Mental Diseases at the University of Vermont College of Medicine.

Dr. and Mrs. Charles Newcomb of Montpelier were given a reception on Monday evening, Feb. 25, at their home on Elm Street in honor of the twenty-fourth anniversary of their marriage.

At a meeting of the Chemistry Club of the University of Vermont held Feb. 21st, C. P. Moat of the State Laboratory gave a very interesting address on modern methods of water analysis and the interpretation of results, as affecting the public health.

Dr. Tonio J. Bertagana died recently at his home in Proctor of mercurial poisoning, caused by mistaking bi-chlorid of mercury tablets for another preparation. Dr. Bertagana graduated from the University of Vermont in 1906, and was soon to begin the practice of medicine in Proctor.

Dr. Hercules Sanche of New York, who some months ago moved to Bennington and purchased nearly 1000 acres of land in Bennington and the adjoining town of Woodford, has been held up in his building operations by a suit brought by Arthur J. Dewey, a local lumber operator, who claims to have a title to a portion of the land upon which Dr. Sanche had already commenced work. Four choppers who were at work clearing away the timber and making ready for foundations were arrested and put under bonds for appearance at a future hearing.

A fire which started in the office of Dr. George Roberts, on Main Street, Brattleboro, was checked by the quick action of Mrs. Roberts. She smelled smoke and started to investigate the cause. She attempted to enter the office, but was driven back by the dense smoke. Mrs. Roberts summoned the fire department and a stream from the chemical

soon stopped the fire, which had started from a fireplace which had ignited the mantelpiece. Much electrical apparatus used by the doctor was ruined. There was an insurance of \$3000 on the apparatus.

Dr. Andrew Jackson Willard, a former resident of Burlington died at Swanton, Mar. 5, in his 75th year after a period of ill health extending over three years. He passed the winter of 1904-5 in North Carolina and then came to Swanton two years ago to make his home with his son. Dr. Willard was born in Harvard, Mass., March 19, 1832. Having lost his father in early youth he was placed by his mother in the academy at Lancaster, Mass. At the age of 17 he was admitted to Yale College, where he graduated with high honors in the "famous class" of 1853. After spending three years at the Yale Theological Seminary, he was licensed to preach. In January, 1857, he was called to the pastorate of the Congregational Church at Upton, Mass., where he spent nearly nine years of honorable service. In 1865, Mr. Willard removed to Burlington, and during the years of 1870-1871 was superintendent of the public schools there. He took up the study of medicine and was graduated from the Medical Department of the University of Vermont in 1877. He filled the position of instructor in chemistry and special professor of hygiene and sanitary science until 1890. In December, 1886, he retired from the position of superintendent and resident physician of the Mary Fletcher Hospital. He was the founder of the Mary Fletcher Hospital Training School for Nurses. He also founded an institution in Burlington known as the Willard Nervine Home.

Dr. R. Halford Miner has resigned as city health officer of Rutland after a year's service. Dr. Miner is compelled by ill health to give up his practice for the present. He will go to a sanitarium. Dr. Clarence F. Ball has been appointed health officer to succeed Dr. Miner.

NEW HAMPSHIRE.

The death of Dr. William E. Pillsbury of Milton Mills occurred on Feb. 10th.

Dr. Linsey E. Grant of Somersworth has decided to allow the use of his name as a candidate for mayor at the election to be held on

March 12. Dr. Grant is a graduate of Bowdoin Medical School in the class of 1882.

At the regular monthly meeting of the executive committee of the Concord District Nursing Association for February, the reports of District Nurse Pressey and other officials proved the most flattering and propitious documents of this kind ever presented to the executive committee. During the month of January the district nurse made 497 calls. These 497 calls were made upon sixty-seven different cases for twenty-four different doctors. Thirty-four of these cases were acute, and fourteen chronic, eleven obstetric and eight surgical. Thirty were free and thirty-seven paid something for the care given. One all-night visit was made and seventeen in late evening or early morning. Eleven calls were made outside the city proper. This is the largest month's work ever recorded by the association.

The second annual meeting of the Hillsborough County Medical Society was held at the Tremont House, Feb. 7. About twenty-five physicians and surgeons attended. After the preliminary business, Dr. Rogers of Manchester read a paper on "Anæsthetics and Anæsthesia." A discussion followed. Dr. A. S. Wallace of Nashua read an essay on "Acute Osteo Myelitis" which was also followed by a discussion. A meeting of the executive committee wound up the forenoon's session.

Dinner was served shortly after the noon hour. Reports were received at the afternoon session and new members were admitted. Then followed the annual election with the following result: President, George D. Towne, Manchester; vice president, A. S. Wallace, Nashua; delegates to state society, Frank E. Kittredge of Nashua, George C. Wilkins of Manchester and Charles A. Weaver of New Boston; executive committee, Arthur F. Wheat of Manchester, C. A. Weaver of New Boston, H. F. Hutchinson of Milford, Byron D. Pease of Greenville, I. C. Anthoine of Nashua; secretary and treasurer, Ella B. Atherton, Nashua.

A paper on "Two Cases of Brain Abscess" was then read by Dr. Frank E. Kittredge and the subject was discussed. The meeting closed with the address of the retiring president, Dr. Weaver of New Boston.

MAINE.

Dr. Arthur W. White of the University of Vermont, class of 1906, is practicing at Presque Isle.

Dr. Franklin N. Whittier of Bowdoin College has been made milk inspector of the town of Brunswick.

Dr. J. W. Doughty, formerly of Parker Head has an excellent position as surgeon in a hospital in Tacoma, Washington.

At a caucus in Waterville on Feb. 22, the Republicans named Dr. Luther G. Bunker as their candidate for mayor. Dr. Bunker is chairman of the Republican city committee.

Dr. Harry A. Weymouth was nominated as the Democratic candidate for mayor of Saco on Feb. 19, and at a meeting held later by the Citizens' Association the nomination was indorsed.

MASSACHUSETTS.

Dr. Carroll Still is assistant physician at the Channing Sanitarium at Brookline.

Dr. A. V. Mills of the class of 1905 of the University of Vermont has settled at Attleboro, Mass.

Dr. C. F. Whitney has accepted a position as assistant physician at the Adams Nervine Asylum, Jamaica Plain.

Dr. George V. Fiske, who sued the Boston and Maine Railroad for injuries sustained on a train, riding between Manchester and Concord, was awarded \$600.

Dr. W. B. Lane of Brattleboro, Vt., has been appointed Medical Director in the care of the insane by the family system of Massachusetts. His headquarters are to be in Boston.

Dr. Robert Provan, a well known former resident of South Boston, died on Feb. 25, at his residence, 1 Williams Street, Brookline, of heart disease, after an illness of ten weeks.

Dr. Samuel Pitcher, vice-president of the Hyannis National Bank and prominent among proprietary medicine manufacturers, died recently at Ormond, Fla. Dr. Pitcher was 82 years old, and is survived by a widow and one daughter.

Dr. David A. Collins, former assistant surgeon of the 9th Mass. regiment, died Feb. 6th, at his home in Roxbury after a short illness. He was a graduate of Holy Cross College and of the Harvard Medical School in the class of 1886.

A corps of nurses at the Newton Hospital fought a bad fire recently, while beneath them were stored gallons of ether and alcohol. They held the flames in check until the arrival of the firemen, and proved themselves heroines by their coolness and courage in the face of terrible danger.

Dr. Charles L. Moran, for two years interne at the Boston City Hospital and at present house officer of the south department of the hospital, the contagious department, is ill with erysipelas. He was taken sick about a week ago while on duty at the hospital. It is thought he is on the road to recovery.

Dr. Samuel A. McDougall died Feb. 9 at the home of his daughter, Mrs. Charles M. Lawrence, 11 Myrtle Street, Jamaica Plain. Dr. McDougall was born in Albany, N. Y., June 29, 1830, and graduated from the Albany Medical College in 1857. Largely through his efforts the Massachusetts Dental Society was organized in May, 1864. He was a member of the New England Dental Society, Massachusetts Medical Society and the Albany Medical Society. He was also prominent in Masonic circles, being a member of Mt. Lebanon lodge.

NEW YORK.

Dr. A. K. Aldinger (U. V. M. 1899) is connected with the Physical Education Society of New York and vicinity.

Dr. J. A. Johnson, a well-known physician of Chateaugay, while driving one day recently received serious injuries. He was thrown with great force from his cutter, his left leg being fractured between the hip and the knee. His wife was with him but escaped injury.

The marriage of Miss Maud H. Thurber, daughter of Dr. and Mrs. E. E. Thurber of Brainerdsville, and Dr. L. P. Sprague of Burlington, Vt., occurred Feb. 22, at the home of the bride. Dr. Sprague is food inspector and

chemist for the Vermont State Board of Health.

Fire destroyed the large central building of the Foord-Moore Sanitarium at Kerhonkson, Ulster County, on Feb. 23, owned by Dr. Andrew D. Foord. There were but few people in the main building and these escaped uninjured. At the time of its discovery the fire had made great headway and it was impossible to save the building or its contents. The majority of the patients were in the cottages surrounding the main building.

A FEW REMARKS ON MEDICAL EXPERT TESTIMONY.*

*By George Franklin Shiels, M. D., C. M.,
F. R. C. S. E., L. R. C. P., etc., New York.*

Probably there is no subject in the medical curriculum which is so much neglected as medical jurisprudence, and no branch of it so little considered as that which deals with medical evidence. As a result the graduate begins practice with practically no knowledge in this direction, and, if he be lucky, may go through life without being placed in a position to regret his lack of learning; on the other hand, he may at any moment be called into court as an expert witness, and in the hands of a clever lawyer may be made the object of ridicule. Remembering this, it would seem that an occasional paper on some branch of the subject is not amiss, and so I shall ask you to bear with me while, out of the many, I try to point out a few of what seem to me important phases of the question. This I will do under the following headings:

- (A) Compensation of the medical expert.
- (B) Points referring to the attitude and rights of the doctor while on the witness stand.
- (C) Especial points in trials involving the question of insanity.
- (D) The value of medical expert testimony as now introduced.

Before going further it will be necessary to make clear the difference between a witness, as to fact, and an expert witness, since the laws which govern these classes are widely different.

A witness as to the fact is one who sees, hears, or knows either actual facts connected

with the case at issue, or facts from which legal inferences applicable to the case may be drawn. This witness, whether ignorant or learned, poor or rich, young or old, must give evidence when called upon, and should he refuse to answer questions which the court rules proper to be answered, he is liable to be punished for contempt of court.

An expert witness is one who, through especial study or experience, is particularly instructed in some art or trade, and may give his opinions on questions of science or skill relating to such art or trade.

Now, since every business or employment which has a particular class devoted to its pursuit is an art or trade in the legal sense, it can be readily understood that a medical man, when called upon to give his opinion evidence connected with his profession, is an expert witness.

(A) *Compensation of the Medical Expert.*
—In civil actions the question of compensation rarely arises since the attorneys usually call upon the witness and make a definite business arrangement with him regarding his fee. In criminal procedures compensation is a common cause of misunderstanding and trouble, and in such cases I strongly advise medical men to demand their fee before going on the witness stand and giving their opinion evidence. In spite of the fact that the common law has established the understanding that the professional opinion of a physician is to be regarded in the light of property, and that the scientific or expert witness must be paid just as the merchant is paid for his wares or the farmer for his crops, still in many States he is offered the common witness fee, and is told he must be satisfied with that or nothing. Where the doctor has contested the matter it has been found that the court opinions for and against extra compensation are about equally balanced, and that should he claim an exception exists exempting him from the general rule which requires all witnesses, on the payment of the fee allowed by statute, to testify as to matters within their knowledge, then the burden is on him to establish the exception.

Another and interesting phase of the subject of compensation, and one which often comes up, is as follows: A doctor sees, for instance, an assault in which a man's leg is broken, and is subpoenaed to give evidence as to what he saw. During his examination the

*Reprint from the *Medical Record*.

attorney directs his questions to obtain opinion evidence concerning the natures, causes, and effects of fractures. In this case there is no question as to the witness having to testify as to what he saw, but he can and should positively refuse to give his opinions relative to fractures unless he receives especial compensation as an expert witness. This holds equally good in civil actions, such as street car accidents, etc.

(B) *Points Referring to the Attitude and Rights of the Doctor while on the Witness Stand.*—While we know that there are many physicians and surgeons who, through association with railroads, mills, accident insurance companies, etc., are cool and self-possessed while on the witness stand, still the average practitioner looks on such an experience with a certain feeling of dread; hence I feel that I may draw attention to a few points which may be of use in this regard.

(1) Let the witness at all times remember that he is, by virtue of his diploma, an expert opinion witness, that he is in court to express his own opinions irrespective of any author or authority to the contrary.

The tendency on the part of attorneys is to borrow or buy numerous supposedly authoritative works, and to study them diligently over night. They come into court full of what they conceive to be medical knowledge, but, as a rule, knowing less than before they burned the midnight oil in cramming up for the trial. Knowing this, a doctor need not fear their attacks, and by maintaining a cool and quiet demeanor he will in the large majority of cases come out right in the end.

(2) Let him always keep in mind that he has an inalienable right to explain any answer he may give, even though it be simply "yes" or "no." By keeping this in mind he will often be able to set at naught the efforts of an attorney to made him stultify himself.

(3) Let him at all times be ready to frankly acknowledge ignorance should he be ignorant on any point. Anything like evasion will at once be noticed by the attorney, who will do his best to show ignorance, and will enlarge on it to the discomfiture of the witness. This he will do, even though the subject of the question be trivial, irrelevant, and immaterial since his object is to belittle the doctor in the minds of the jury, and thus lessen the value of his other testimony.

(4) Let him always, when asked, freely acknowledge that he is paid for his services. It is an axiomatic fact that the laborer is worthy of his hire, and, though the lawyer always tries to show that by being paid a witness is biased, still a frank statement that one is paid for his time and skill will never weaken a man's status before any court.

(7) He should avoid as far as possible the use of technical terms, and, if it is necessary to use them, explain their meaning in plain English.

(9) Let the witness always remember that should he feel that an attorney has gone too far, and has become insulting, he may turn to the judge and request his protection against such insult. In the experience of the writer this has never failed to have an immediate effect.

(10) Let the witness go on the stand with the absolute promise to himself that he will not lose his temper, for the lawyer takes great delight in trying it sorely.

(11) Let him never permit himself to become so biased that he will allow himself to avoid an honest answer to any question, even though the question is asked by the attorney on the opposite side, and may seem to be against the best interests of his own side.

(12) On answering the usual hypothetical questions asked by the lawyers, let him thoroughly understand it, and, should it be needful, let him explain his answer should he think that such answer places him in a false light before the court.

(13) No medical man should ever allow himself to be drawn into a trial where he is in doubt as to the real merit of the case from a medical or surgical point of view.

(C) *Especial Points in Cases Involving the Question of Insanity.*—My remarks under this heading are directed to the question of the criminal responsibility of the insane. It would take volumes to go into the discussion of the subject of insanity in all its medicolegal aspects.

In trials where the question of soundness of mind is the issue a complicated condition of affairs generally results, and, while the jurors are the final judges, the physician is always called to aid them by the expression of his opinion, and by giving them the benefit of his experience and study. The reason for these complications is not far to seek since the view point of law and medicine is entirely different.

No well-balanced medical man would attempt to unqualifiedly define insanity. The very definition that it is a disease of the mind naturally leads to the question, "What is the mind?" And even such an authority as Herbert Spencer frankly states that he does not know. In order to be able to definitely state the nature of insanity, it would be first necessary to define the meaning of the word sane. This is practically impossible, since it is a conventional and approximate term applied by use and custom to a class of individuals who think and act in a certain way regarding themselves, and toward society at large. While a distinct departure from this standard would easily be established as insane, who would venture to draw a distinct line between sanity and eccentricity, or between eccentricity and insanity? We all can say "this is day," or "this is night." Who can say "here day ends," "here night begins." There is the twilight, which is neither day nor night, but in part both, and which cannot be described or defined. Oftentimes so it is with the change from sanity to insanity. Gentlemen in our profession, there is no such thing as an absolute definition of insanity. Each case must be taken and studied as a separate entity, and frequently the most careful study leaves the physician in doubt.

On the other hand, it would seem necessary to have a legal definition of insanity, since the insane cannot be held responsible for their acts, and since insanity is very frequently used as a plea in the defense of prisoners who have committed criminal acts.

Out of the multitudinous efforts to reach a satisfactory understanding, there has been evolved the following postulates: (1) A sane individual can distinguish between "right" and "wrong" in the concrete case; (2) he is possessed of will power adequate to control his impulses, and to control them in the light of that knowledge of right and wrong. The law presumes a man to be sane according to this standard.

From these postulates the law has constructed a definition of insanity, which holds good in most of our States, and which is as follows: "A man or woman is insane who does not know the difference between right and wrong in regard to any specific particular act, and who further does not know the consequences of committing such act." The question must be

relative to the particular act done, and the accused's knowledge of the situation in which he did it. Did he know it was wrong at that moment? Was he impressed with the consciousness of guilt and the fear of punishment? If he did not he is insane according to the law.

It is easy to see from what I have said that no physician could possibly agree with this legal definition of insanity and that were it applied to a large proportion of the inmates of our State asylums, they must be held to be sane. For instance, witness the insane patient who knows that it is wrong, and against the laws of the institution, to smoke in the wards, who knows that he will be punished if he does it, and who still, with great cunning and forethought, plans his smoking to escape detection by the officials of the hospital.

In closing this portion of my paper, I wish emphatically to advise the medical witness to refuse at all times even to attempt to give a general definition of insanity.

As to the legal definition, it is purely a matter of personal opinion whether he approves or disapproves of it. No matter what the doctor may think to the contrary, the legal definition stands as the law, and is not question for argument. The jury will decide whether the case at issue fits it.

(D) *The Value of Medical Expert Testimony as Now Introduced.*—Expert testimony is no more conclusive to the jury than the testimony of witnesses as to the fact, and no matter how learned a doctor may descant upon a technical point, the jury has a perfect right to accept or reject any or all of the evidence given by such opinion witnesses. However, judges will as a rule instruct juries that expert evidence, if from a high source, and if delivered without bias and with proper caution, must be given great weight. For my own part, I beg to say that medical expert testimony as now introduced can, in the large majority of cases, be of little value, and for these reasons: There are few men who, when employed in the interest of an individual or a corporation, can resist the tendency toward bias, and I have actually seen cases where such witnesses have sworn to opinions to which in their calmer moments, when free from bias, they could not have given their support. Again, it is almost laughable to hear the flat contradictions which occur where medical experts are put on the

stand by contesting parties, and it must lead the intelligent mind to formulate a very poor opinion of our profession. Certainly were I on a jury which had to consider such evidence, I should give it little or no weight. Further, since to be a doctor is a sufficient ground to establish a man as a medical expert witness, one can easily see how a graduate of a two-year irregular college, with a glib tongue and a positive and convincing manner, can, by contradicting it, cause a jury to practically throw out the opinion evidence of a weighty authority who is not blessed with the ability to express himself with force and clearness.

But, gentlemen, expert medical evidence could be made of the greatest value in forwarding justice were it properly introduced. May I suggest two perfectly feasible plans: (1) Let the attorneys of each side select two experts, and let the four thus chosen agree on a fifth. These five men could, after careful deliberation, bring in a full and useful report on any technical points placed before them. Or (2) leave the matter entirely in the hands of the court, who could call one or a dozen medical men to elucidate, with absolute freedom from bias, any technical points which might arise in a trial. I incline strongly to favor the court having the control, since it would entirely do away with the possibility of partisanship, provided always that the court is what it should be—learned, dignified, and absolutely impersonal. Under this rule the very best men in the ranks of the medical profession would always be ready and glad to give their services, instead of shunning the courts on account of the false position in which they are so frequently placed by the warring attorneys.

Lawyers may urge that my plan places too much power in the hands of the judge. I do not think so. The more responsibility and power vested in the judicial office the more readily will the man sink his own personality and rise to a full appreciation of the grave, dignified, honorable nature of the position which the people have called upon him to occupy, and the confidence placed in him will be a sacred and inviolable trust which nothing could cause him for a moment to forget.

A HARDY PRACTITIONER.

The oldest active professional man in Vermont today is Dr. E. O. Whipple of Danby,

Rutland County who, although in his 87th year, practises medicine in the village where for nearly 60 consecutive years he has cared for the sick.

Hale and hearty as a man 30 years his junior, he never refuses to answer a midnight call. He drives scores of miles every day over rough mountain roads, whether the weather be mild or cold. Since Dr. Whipple first put out his shingle he has always had all the patients he could minister to, notwithstanding that he still adheres to the old school methods.

Dr. Whipple's history is interesting. Born on a farm, he had a taste of the life which came to all the early Vermonters. Later he prepared himself for his profession, acquiring with his medical knowledge a smattering of dentistry, which he even now turns to good account. He is a good mechanic, and during recreation hours repairs his neighbors' clocks and watches. He is an expert fisherman, and brings in many a creel of trout from the mountain streams near his home.

Dr. Whipple was born in Athens, Vt., in 1820. At the age of 16 he set out to learn dentistry, to help his father pay a debt on the home farm. Having succeeded in this, he left home with 10 cents in his pocket, going to Hyde Park, where he earned \$40 by dentistry. Then he went to Milwaukee, landing there with a capital of six cents. But here again he brought his dental kit into use. Taking it under his arm, he started for Rock Island, pulling teeth as he went, and in a month reached his destination. He came East the next spring with enough money to study medicine, finally graduating from the Castleton (Vt.) Medical College in 1847. Settling in Danby, he has remained there most of the time until now, except for a short time during the sixties, when he took a course at Bellevue Hospital.

Dr. Whipple was married in West Townshend, September 25, 1848, to Miss Augusta Sawyer, who died in 1892, leaving one son, Dr. Frank E. Whipple, a graduate of Middlebury College and Bellevue Hospital Medical School, now practising in San Diego, Cal.

Dr. Whipple married April 23, 1896, Mrs. Katherine Pierce.

Dr. Whipple is a strong republican, a Mason, an Odd Fellow, and a member of the Rutland County Medical and Surgical Society.—*Burlington Free Press*.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

FRESH AIR TREATMENT.

W. GILMAN THOMPSON (*Medical Record*, Feb. 9), in an article on "The Fresh Air Treatment in Hospital Wards," writes as follows: The most striking benefit of the uncooked air treatment is shown in cases of pneumonia. Delirious alcoholic patients, with profound cyanosis, when taken out of the general ward and placed at windows open day and night, become less nervous and restless, and distinctly less cyanosed. I formerly gave such patients oxygen sedatives, whiskey, and other stimulants. In the open air they, of course, receive no oxygen, and require far less of stimulants and sedatives. During 1906 we treated in all at the Presbyterian Hospital 128 cases of acute lobar pneumonia. Of these patients 47, or 36.7 per cent., received absolutely no drugs whatever—no stimulants, no narcotics, no inhalations, no "specifics," nothing except the occasional laxative, which anyone in bed with fever may require, and they all recovered, in the usual way, when the time came. Some defervesced by crisis, some by lysis, some in five days, some in 12 days, or other intervals. A large proportion of these patients received the uncooked air treatment and enjoyed it. The air temperature was often as low as 35° F. or 40° F. They never complained, except when some emergency required them to be taken back to the ward, as when the room was needed for some other patient in more urgent condition. They were not all thus treated merely from lack of sufficient isolation rooms or balconies. The remaining ward patients who recovered received various drugs or stimulants, solely because certain complications arose which needed treatment. But I would again emphasize the fact that of 128 patients with pneumonia, 36.7 per cent. made complete recovery in the usual time, without any medication, and for the most part with their heads lying close to open windows in midwinter weather.

Other diseases that do remarkably well with open window treatment are cerebrospinal meningitis, chronic sepsis, and all forms of anemia. The meningitis patients become very much quieter, sleep much better, and look better in every way. A patient with a pernicious anemia in which the red blood corpuscles numbered only 828,000 gained over a million red cells in a week when I took her out of the general ward and placed her in a small room with wide open windows. She left the hospital a few weeks later, with over 4,000,000 red cells, and a hemoglobin estimation that had risen from 20 to 80 per cent.

When the pneumonia or other febrile cases require a cold bath, or the use of a bedpan, or any procedure necessitating exposure, they are temporarily taken into the ward, or the windows of their rooms are closed, and the rooms warmed.

* * * * *

In answer to those who object to giving a pneumonia patient first-hand, unbreathed, uncooked air (and such objectors have usually never seen the treatment tried), it should be stated that this form of treatment is not a temporary fad or a "fresh-air crusade," but a very old, well tried, and widely tried, common-sense method, from which we have been somewhat led away of recent years. The undesirable necessity of building large metropolitan hospitals of the "sky-scraper" type, the idea of massing all manner of heterogeneous cases with a series of long wards, all precisely the same, like sheep corrals, and

the inhumanity of architects, who strangely prefer mansard roofs and stright ornamental facades to roof gardens and ward balconies, pernicious application of wholesale ventilation "systems" for the air supply of the air-hungered—these are some of the factors which have led us to turn from the open window and fix our exalted gaze upon the cast iron heater in the wall!

* * * * *

I have purposely thus far omitted mention of tuberculosis, because the object of this meeting is to stimulate interest in the application of fresh air—not necessarily cold air, but always *fresh* air—treatment to a very large variety of other diseases. Tuberculosis has demonstrated for us that fresh air acts not as a specific for any one disease, but by increasing the resisting power of the organism against many diseases. To this end we should learn to adapt our modern hospital construction as well as that of our own homes. The following conclusions for the betterment of ward ventilation in this cold and very changeable climate are submitted:

1. Ward heating and ward ventilation should be capable of independent adjustment at all times.

2. The night temperature of the ward should be at least 5° F. below the noon day temperature, which latter should not be above 68° F. or 70° F.

3. The ward windows should be furnished with transoms and one or two movable separate panes, to admit of easy regulation and ventilation.

4. No window should be so heavy that it cannot be readily handled by the nurse.

5. The ward should be in communication with balconies or porches, on to which patients' beds can be moved through windows of the casement type. Such balconies need not interfere with the adequate lighting and ventilating of the ward, as proved at the Bellevue and other hospitals in which they have been used. (They are being put upon all the wards of the new Bellevue).

6. The building of very large wards should be discouraged and a greater number of small adjacent rooms should be provided to admit of the scientific adjustment of the ventilation and temperature to suit the requirements of different patients.

7. The windows of the ward, even on the coldest day, should be opened at least twice daily, in the early morning and late afternoon, for a few minutes to thoroughly change all the air in the room. During this time any patient may be covered temporarily with extra bed clothing if there be fear of exposure from draft. The same procedure should be carried out immediately after visiting hours.

8. Day rooms should be provided for convalescents where they can obtain change of air and scene, and leave more fresh air for the bedridden patients in the wards.

9. The ward should have at least one *accessible* heater, where patients temporarily sitting up may gather and warm their feet if desirable.

10. It is entirely unnecessary to have all the ward windows precisely alike, except from some fanciful esthetic standpoint. Thus certain windows of the casement type should spring from the floor and give on to balconies. Obviously heaters cannot stand in front of these windows as they should in front of other shorter windows of the ordinary height. Windows should be grouped with more reference to sunlight exposure, ordinary wind exposure, etc., than is usually done.

11. House staff and nurses should not only be taught ventilation theoretically, but made to put it into practice in the wards, and should be made to regard fresh air as of equal importance with fresh food.

Where these simple common-sense principles are in daily practice it is possible to use fresh air as a definite therapeutic means and secure most gratifying results. Finally, air temperature and ventilation are *not* synonymous terms!

FUNCTIONAL ALBUMINURIA.

The cases of albuminuria without evidence of kidney disease, which have been described under the name of dietetic, postural, cyclic, etc., are dealt with in a paper by Dr. Kingston Fox in the *Lancet* of Aug. 15th, under the caption of "Hæmatogenous Albuminuria." As a ground for this designation he says:

"Sir A. E. Wright's hæmatological studies have produced strong grounds for the belief that this kind of albuminuria is due to a disorder of the blood, the outstanding feature of which is lessened coagulability (diminished viscosity). The evidence for this has been already detailed in the *Lancet* and may be summarized as follows: 1. In four subjects of this form of albuminuria the coagulation time of the blood averaged one minute fifty seconds. It is well known that salts of calcium increase the coagulability by promoting the formation of fibrin. By this administration of calcium lactate to these four subjects the time was reduced to an average of one minute twenty seconds. The albumen had then disappeared from their urine. 2. In four cases of albuminuria with signs of disease of the kidneys or urinary passages the average coagulation time was one minute thirty seconds and it was reduced by the administration of calcium lactate to an average of fifty seconds. The albumen was unchanged or somewhat increased in amount. 3. The functional efficacy of the kidneys was demonstrated to be unimpaired in seven of the first class of cases by the determination of the 'excretory quotient,' which is a measure of the power of the kidney to elaborate out of the blood a concentrated saline solution. In the four cases of the other class it was found to be lowered greatly. 4. The subjects of the form of albuminuria in question have usually been undergoing rapid bodily growth, in which there is a demand for calcium, especially for bone formation, so that a deficiency of this substance in the system is likely to occur. 5. Experience has shown that a milk diet which is rich in calcium cures the albuminuria in many cases. 6. Wright ranges this symptom with a class of other 'serous hemorrhages' dependent on transudation of serum and associated with lessened coagulability of the blood; amongst these are urticaria, chillblains and forms of headache, edema and weeping eczema. It is not the rule for these disorders to occur in the same subject, so that it seems that one person is vulnerable in his skin, another in his meninges, another in his kidneys; and thus far a kidney weakness may be postulated in those who have hæmatogenous albuminuria.

"Further observations.—The control of the albumen by the use of calcium lactate is the chief clinical test. It has been confirmed by other observers, although no results have yet been published so far as I know. I have used the test in sixteen cases of albuminuria indiscriminately. In seven the albumen disappeared or was reduced to a small trace after the taking of the lactate. These were, I believe, all instances of hæmatogenous albuminuria. In the remaining nine the albumen persisted; in most of these cases signs of kidney disease were present, but in two or three the albumen may have been hæmatogenous, needing a longer course of the calcium salt for its removal."

For diagnostic purposes the writer administers 15 grains of calcium lactate at night and if the albuminuria be of this type, the urine of the following morn-

will be albumen free. The test is repeated two nights later. Dr. Kingston Fox considers the prognosis generally good, but would impose a slight extra premium in life insurance cases. The most important part of the paper is the suggested treatment, concerning which he says:

"Clinical instinct has not been at fault in the treatment of these cases, albeit their pathology was unknown. Rest in bed, a milk diet, saline purgation, iron and nux vomica—tonics for the blood and nervous system—these means were used long ago and they cured the disorder. Rest may, however, be overdone, for (as Armstrong has well pointed out) the school boy is all the better for his fresh air and play, though he should not compete in races. The value of milk is probably due to the calcium which it contains; and the salines produce a watery osmosis which renders the blood more concentrated. Alcohol should not be given, for it is a 'lythagogue,' and is suspected of producing the disorder. The direct use of calcium lactate gives us a new and effectual means of altering the blood state on which the transudation of albumen depends. It is needful in some cases to continue its use over a long period. Nias has recently studied a case in which calcium salts were not absorbed with facility and had a coagulative effect. Possibly cases 8 and 9 (above) were of this kind. It would be well to try a dose (15 to 30 grains) of strontium lactate when the albuminuria is refractory to the calcium salt."—*Pacific Med. Jour.*

PEDIATRICS.

RHEUMATISM IN CHILDREN.

J. ROSS SNYDER, Birmingham, Ala. (*Journal A. M. A.*, Feb. 9), questions the present tendency to widen the conception of rheumatism in childhood. He says that, eliminating scurvy, pyemic arthritis and the soreness and stiffness of muscles and joints from the clothing, coddlings and bouncings, the cases of rheumatism in nurslings are almost *nil*, and from the eighth year onward an attack of rheumatism in a child resembles more or less closely the adult type. He gives a list of a number of conditions that have been regarded as occasional manifestations of rheumatism and some of these have in certain cases a connection that can not be denied. The most important of these are the cardiopathies, especially endocarditis, but in view of the number of infective processes that are capable of causing both arthritis and endocarditis, Snyder thinks preconceived notions as to the association of the two disorders will cause many mistakes in diagnosis. As regards chorea, tonsillitis and erythema nodosum, he is inclined to think the evidence as yet insufficient to prove their relations to rheumatism. As regards the many other conditions considered to be manifestations of child rheumatism, his opinion is that they will "one by one be taken away from this connection until rheumatism will come to mean not everything, but something or nothing."

RHEUMATIC FEVER IN CHILDHOOD.

Rheumatic fever is the term chosen by C. H. DUNN, Boston (*Journal A. M. A.*, Feb. 9), to designate what is commonly called acute rheumatism in childhood, including the cardiac and other symptoms, as well as the arthritic manifestations. He gives the literature and facts as to its infections and microbic etiology a critical examination, and concludes as a result that at present it seems advisable to accept the *Micrococcus rheumaticus* of the English investigators, Poynt-

ton and Paine, not as the absolutely proven, but as the probable cause of the disorder. A careful study of some three hundred cases treated at the Children's Hospital, Boston, during five years, brings out the following points as characteristic of the disease, as here conceived, in early life: 1. The comparative mildness of the articular manifestations. 2. The relative frequency of cardiac manifestations. 3. The large number of cases in which only cardiac manifestations occurred; an actually greater number than those with only articular symptoms. 4. The frequent primary occurrence of endocarditis or pericarditis. 5. Cardiac manifestations are the most severe. In acute endocarditis, and even more in acute pericarditis, the severity of the case and danger to life are greater than in acute arthritis. 6. A notable feature was the tendency to recurrent attacks with varying manifestations, arthritic, pericardial, etc., and not following any particular order, one form one year and another form for another year. What is called "broken compensation," and generally attributed to overexertion, was observed in 121 of the 300 cases. Dunn attributes it here to a fresh infection rather than to overstrain. As regards diagnosis, he says, given any case of arthritis, especially if with the physical signs of endocarditis, or any case of acute infectious disease without other localization than in the pericardium or endocardium in childhood, the probability is that it is a case of rheumatic fever. Previous attacks, chorea, sore throat, etc., strongly increase this probability. Endocarditis, and other infections from the pyogenic cocci or as complications of other recognized infections are readily diagnosable. As regards prognosis, he says, many physicians do not recognize that the chances of death may be as high as one in five. The cardiac complications are more frequent than in the adult. The severest form is pericarditis, with a high mortality. In conclusion, Dunn points out that the general characteristics are those of a definite clinical entity, and most probably a specific infection to be placed in the same rank as scarlet fever and measles as definite disease species.

HYSTERIA IN CHILDREN.

D'ORSAY HECHT, Chicago (*Journal A. M. A.*, Feb. 23), says that hysteria in children has not received the attention it deserves and that its frequency is underestimated. He does not attribute it especially to defective modern methods of education or to a luxurious civilization, since statistics show that it is not confined to those who are specially liable to be affected by such, but is found as often in the children of the poor and ignorant as in those of the rich, and that the major types are recruited more from isolated rural districts than from urban centers. Though too much reverence has perhaps been given to heredity in its etiology, the potential force of direct transmission, he states, must be admitted without reserve. The facts of preceding temporary traumatism in some cases and the impressibility and imitative tendency of children must also be borne in mind. It is useless to look for all the so-called stigmata and accidents of adult hysteria in the child; juvenile hysteria in its objective manifestations is chiefly monosymptomatic, and a single hysterical symptom, standing out in bold relief in the child should, from its very prominence, arouse suspicion as to its functional nature. Motor symptoms prevail; sensory symptoms, according to Hecht, are rarely noted in children, and when they are, are usually of the hyperesthetic type. When an anesthetic zone, suggested or not, appears, it is of the same sharply demarcated, unanatomic type as in adults. Hysterical motor agitation shows itself largely in the form of choreic movements, a variety of

facial spasms, convulsive tics and epileptoid seizures. The graver forms of the latter are frequently mistaken for epilepsy, and those of somewhat lesser degree are conveniently evaded with a diagnosis of hystero-epilepsy, a practice to which Hecht objects. As regards diagnosis, Hecht favors the Mobius dictum in dubious cases that "such symptoms may be regarded as hysterical, which can not be voluntarily produced or which may be simulated." The greatest difficulty is often not so much to avoid mistaking organic disease for hysteria and vice versa, as in failing to appreciate that organic disease may, and frequently does, complicate hysteria. We should study the child's temperament, remember its imitative faculty and in all conditions with a prominence of doubtful symptoms, think of hysteria as a not impossible factor. The prognosis is infinitely better than in adults, and as a rule, the younger the child the better. The fundamental law of treatment is that all hysterical symptoms are psychic, and the means of cure can only be psychic, i. e., acting on and through the patient's mind. An early and positive diagnosis favors an early and complete cure. Isolation is imperative when the cordial and efficient co-operation of friends and parents can not be had. After a cure in isolation has been secured the patients should not be returned too soon to their former associations. Hecht refers with some little detail to Bruns' methods of treatment of these cases, the "method of surprise" and the "method of disregard" and considers the objections that have been made to them rather weak. Unpleasant and even slightly painful methods applied with due judgment may be successful because of these quantities in properly selected cases.

MILK MODIFICATIONS.

D. R. BROWN, Salem, Mass. (*Journal A. M. A.*, Feb. 16), goes at considerable length into the calculations and formulas for accurate milk modification in infant feeding. While some of these appear decidedly complicated, he summarizes them more simply toward the close of his paper. As he says, it is not necessary to remember all the percentage figures as indicated at different ages. Until the child is 10 or 11 months old, at any rate, the proteid percentage is not less than 1-3 nor more than 2-3 of the fat percentage, and as the ratio of fat to proteid decreases with the increasing age of the child from 3 to 1½ one need not be at a loss as to the suitable modification for the infant at any age, and the impression that frequent changes must be made in the amount of food and in the percentages prescribed, he states, is a mistaken one. While it permits the exercise of great skill in adapting the foods to the needs, in particular conditions, it also admits considerable routine practice in the case of the healthy child. One must keep in mind the principle that except certain abnormal or diseased conditions, mixtures with the fat percentage ratio exceeding 3 should not be used continuously for any length of time, as they are not sufficiently nutritious, while mixtures in which the ratio is below 1½ needlessly tax the digestion and invite disorders. Directions are given for the use of whey feeding in some detail. In the case of the feeble infant a more detailed and elaborate study of the special needs of the child, in order to supply it with the food its condition requires, is essential, instead of leaving the matter of the milk supply to the average milkman and the special modifications to the manufacturers of "patent" foods. The mixture usually required, if suitable milk is used, or analysis if the milk is known, may be computed by the working equations or reference to the feeding charts.

SIMPLICITY IN INFANT FEEDING.

The advantages of simple, not too formidably mathematical, rules for the percentage of milk feeding of infants is suggested by C. W. TOWNSEND, Boston (*Journal A. M. A.*, Feb. 16). There is less liability of error by the mother or nurse, it is easier for the physician to prescribe and it is natural to presume that the less the manipulation generally, the better for the milk. It is better to get a clean cow's milk and modify it to suit the case than to try to improve an unclean milk by centrifugalization or Pasteurization, and as the dilution of whole milk would cut down the fat too much it is necessary to begin with a cream as the basis. He prefers pouring off the top milk as the simplest and, on the whole, the safest method of obtaining the cream and one giving very uniform results. As a rough rule, one may remember that in a quart of milk that has stood at least four hours, the upper six ounces contains about 14 per cent. of cream, the upper 8 ounces 10 per cent., the upper 12 and 16 ounces about 8 and 6 per cent. respectively. The amount of fat must be regulated by the appearance of the stools, and it is better, as requiring less manipulation, to dilute this top milk with water than to combine a rich cream, a lower or fat-free milk and water. Instead of pure water, a cereal water can be used in even the youngest infants, and some have difficulty in digestion without it. After the age of six months a cereal modification is better for all infants. It is safest to begin with a mixture weak in all its ingredients and increase the strength gradually. A new-born baby can be put on a mixture of only 3 ounces of the upper 8 ounces of top milk in 20 ounces, and the strength increased by adding half an ounce of top milk and abstracting an equal amount of water every second day until 8 ounces of top milk are given in a 20-ounce mixture. Many infants who have failed on such modified milk mixtures will, he says, respond at once when these simple principles are borne in mind. In a note he gives a simple rule for percentage calculation and explanatory formulas for those who care to use the method.

CERTIFIED MILK IN SMALL CITIES.

C. W. M. BROWN, Elmira, N. Y. (*Journal A. M. A.*, Feb. 16), gives the experience of Elmira, a city standing almost at the bottom of the list of towns with 30,000 population or over, in securing a certified milk supply. Six physicians were selected by the Elmira Academy of Medicine, who gave their personal attention to the matter and were appointed as a milk commission. They called a joint meeting with the milk dealers, to which not more than twenty of the latter responded; they listened respectfully and did nothing. A personal canvass was then made with the better class of dealers, and one was found, a woman, who had already some acquaintance with the requirements of producing clean milk. After some consideration she took up the work, built a new barn and had her herd tested for tuberculosis. The commission selected its experts and the first certificate was issued April 15, 1903. A 10,000 bacterial count standard was established, which has only been exceeded twice in three years. Butter fat 3.5 to 4.5 per cent. and other usual conditions were imposed. The milk is bottled a few minutes after milking, put in a crate, the top of which is filled with cracked ice, whence it is delivered to customers. Notwithstanding the producer's indisposition to advertise, the sales have gradually increased, and besides supplying local consumers the milk is shipped daily to Binghamton and New York city. At present another dealer, also a woman, has begun to sell high-grade milk in bottles, and there has been an improvement in the milk sup-

ply generally. The city health officer is on the commission, and through his influence an excellent ordinance governing the sale has been passed. The milk inspector of the local board of health has been made a state deputy health officer, thereby empowering him to enter on the premises of the producer. Brown believes that what has been done at Elmira can be accomplished within the next twelve months in a score of other cities of like population which are now without a clean milk supply.

WHY PERCENTAGE FEEDING FAILS.

The causes of the numerous failures in percentage feeding which tend to bring the method into disrepute, are accounted for by H. LOWENBURG, Boston (*Journal A. M. A.*, Feb. 16), by the confusing multiplicity of methods proposed, giving details instead of general principles, by the lack of intelligent application of the methods when used, and the tendency to try to follow details and to obtain impossibly accurate percentages. Too much also is expected in the immediate gain in weight of the child and the result is consequently disappointing. The biologic and physiologic differences between cow's and human milk are not sufficiently recognized, and this is one of the chief causes of failure. Sufficient care also is not given to prevent contamination of the milk supply and the time between the cow and baby should be shorter. Another cause of failure is lack of diagnosis of the cause of the indigestion, whether of fats, sugar or proteids, which each call for a different modification. The failure of the physician also to think in percentages instead of going by formulas of ounces, etc., is pernicious in its effects and physicians also too often fail to teach the mother or the untrained nurse the details of the mixing methods, assuming that they would not follow them out if instructed, and at the same time they do not themselves sufficiently supervise the feeding. Children thus fed by percentage methods should be seen at least once a week and details noted of the child's progress in weight, the condition of the excretions, the amount of sleep, times of feeding, regularity of feeding, etc., and every detail of infant hygiene. The easiness of preparation of proprietary foods is another misleading factor. It deludes parents and thoughtless or indolent physicians into losing their sense of responsibility. As a makeshift or temporary food, as on a journey or when cow's milk can not for the time be obtained, they are of service, but as permanent infant food they are a snare.

FURTHER EXPERIENCE WITH OPSONINS.

Reports are now beginning to come in from various observers relative to the matter of opsonins and the positive value of the new theory. In the *Lancet* of January 5 is a report of a recent meeting of the Manchester Pathological Society, at which Professor A. H. White of Dublin related the results of his experiences of inoculation on the lines laid down by Wright, and explained the necessity of repeated blood examinations in order (a) to regulate the size of the dose and thus to eliminate the negative phase effect as far as possible; and (b) to determine the length of time its effects lasted. He detailed the effects of surgical procedure on the opsonic index and showed how clinical improvement following a surgical operation

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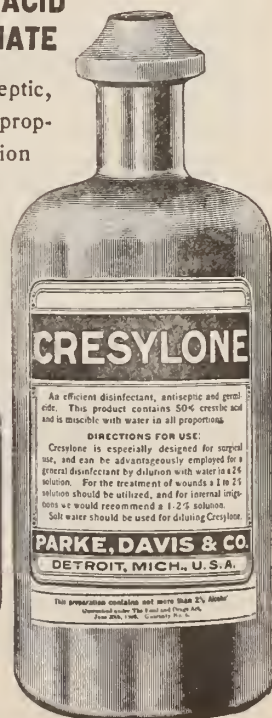
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where only a part of the disease was removed was coincident with a rise of opsonic index, and that relapse with involvement of a fresh area resulted when a fall in the index occurred. Moreover, he showed that such cases might be completely cured by inoculation, as soon as the opsonic index fell, of suitable and properly interspaced doses of tuberculin. In the course of the discussion, Dr. Loveday showed that an attempt to find a small dose of tuberculin which could be used empirically in all cases failed. Different doses of T. R. had very different actions in the same person. A very small dose might give a curve of opsonic indices very similar to that obtained by too large a dose. In some cases it was really too large and still smaller doses were required, while in others a larger dose gave satisfactory results. There was an optimum dose for each patient only to be determined by frequent observations of the opsonic index. The question was still further discussed by Dr. Ramsbolton, who spoke of the therapeutic use of inoculations of staphylococcus vaccine in certain common affections, and emphasized their value in cases of furunculosis and the severer forms of acne, when the pustular eruption was plentiful and the individual pustules were large, in contrast to the milder cases of acne consisting of a "few spots on the face" which did not seem to yield so readily to this treatment. In quoting the actual cases treated stress was laid on the fact that the opsonic index, before treatment, in the cases of furunculosis and the severer forms of acne, was below normal, whereas in the milder forms of the latter affection the index was about, or just above, normal.

SOCIETY MATTERS.

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MINUTES OF NINETY-THIRD ANNUAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY, HELD IN BARRE, OCTOBER 11th AND 12th, 1906.

(Continued.)

PRESENT AT THE STATE MEETING.

The following physicians were in attendance:

Delegates, Guests and Visitors.

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THERAPEUTIC NOTES.

The Journal of Inebriety, after thirty years of continuous studies of the disease of inebriety and drug taking, begins its new decade by entering upon a comparatively new field of physiological and psychological therapeutics, for the treatment of these neuroses. Arrangements have been completed by which the Archives of Physiological Therapy has been consolidated and will hereafter be published as a part of *The Journal of Inebriety*. This very able monthly has been developing parallel lines of study with *The Journal of Inebriety*. In the opinion of its managers its scientific value would be greatly enlarged by concentrating its work along some special lines. The disease of inebriety and its allied neurosis is a field of most practical interest, hence *The Journal of Inebriety* is selected as a medium for continuing the work of The Archives of Physiological Therapy. Henceforth in addition to the various phases of this subject which the *Journal* has presented, the therapeutic effects of hot air, radiant light baths, electricity, massage, psycho-therapeutic measures and other physiological means will occupy a prominent space. This effort to clear away the confusion and broaden the studies of therapeutic means for cure, will make *The Journal of Inebriety* one of the most practical and valuable visitors to every hospital and institution, as well as to all specialists who treat brain and nerve neurotics. We shall aim to present and formulate the latest studies and facts along these frontier lines, and in this way lift the whole field of therapeutics out of its present imperic stage into one of rational therapeutics.

PENNSYLVANIA RAISES REQUIREMENTS for admission to Medical School.—Recognizing the advantages of a broader general education and the growing necessity of the prospective student having in addition special preparation for the study of medicine, the Board of Trustees of the University of Pennsylvania has decided recently to raise the requirements for admission to its medical school. These requirements include two years of general college training and in addition a certain knowledge of biology, chemistry and physics. According to the plan which has been adopted, the standard will be raised gradually, beginning with the academic year 1908-1909 and reaching the maximum 1910-1911.

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THE CARE OF GROWING GIRLS.—One of the most responsible tasks of the family physician is to advise parents of girls entering upon their 'teens, as to the diet, mode of life, and hygienic measures best calculated to preserve the health of budding womanhood. In dealing with these cases the practitioner is often called upon to treat the anemia which in such a large proportion of instances characterizes the unfolding of the growing girl. Full well does the family doctor grasp the meaning of this anemia, and the vast importance of combating it before it is too late,—before the impoverished condition of the blood of puberty has left its imprint upon the powers of resistance of the adult organism; has done permanent damage to the future woman and the future mother.

Unsuitable diet, an overindulgence in sweets or spices, over-study, lack of fresh air and physical exercise, indulgence in late hours and abandonment to novel reading, to tight lacing, and other abominations of dress, contribute their quota to the causes of anemia in the growing girl. Each of these factors is, of course, removable by good common-sense advice

to parents and by proper exercise of discipline. Still, when the damage has been done, we must assist nature in its generous work of restoration, and here it is that we are obliged to give that sovereign cure of impoverished blood, iron, in such form as may best be suited to these cases.

The question as to what form of iron we should give to produce the best possible effects has been solved by both experimental and clinical researches conducted during the past twenty-five years—ever since Bunge and Hamburger experimentally demonstrated the inferiority of inorganic preparations (Morat and Doyen, Traite de Physiologie, Paris, Masson 1904, I, 467). Iron, in the anemia of puberty, produces the best effects when given in a form that will stimulate digestion and increase assimilation, i. e., in the form of the peptonate. With it should always be combined that second hematinic which has been shown to enhance the value of iron,—manganese,—and the two are best given in the form of the well-known solution, styled "Pepto-Mangan (Gude.)" With this may be given, in the anemia of growing girls, minute doses of Fowler's Solution, or else equally small doses of strychnia which may be incorporated with Pepto-Mangan as indicated in individual cases. Pepto-Mangan has a great advantage over other forms of iron medication in that it does not constipate. Girls at puberty, however, are notoriously prone to constipation. Therefore, this should receive proper attention, chiefly in the regulation of diet, including a sufficient amount of fruit, raw and cooked, and of cereals giving a large residue of cellulose. With this method of treatment many a physician has achieved success which was rewarded tenfold, by the sight of rosy faces and bright eyes.

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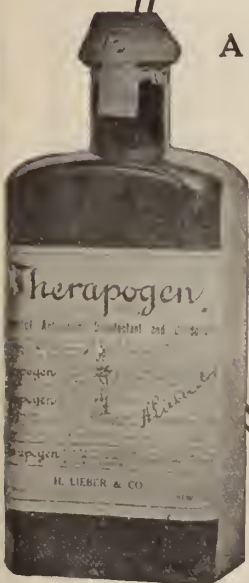
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ORIGINAL ARTICLES.

ETIOLOGY AND PATHOLOGY OF NEPHRITIS*.

By Frederick E. Clark, M. D., Adjunct Professor of Pathology, University of Vermont College of Medicine, Burlington, Vt.

Before entering upon a discussion of the subject assigned to me as a part of this important symposium, I wish to ask your indulgence for a little, while I review some of the histology of the kidneys that I may more clearly state for your understanding the causes and morbid changes resulting in these organs.

There are few organs in the body in which the structure and circulation are so complex. There is a greater differentiation of structure in the glomeruli and tubules than is found in any other secreting organ. There can be found all types of epithelial cells in a single tubule and each performing a special function. We are asked to think of the tubules not only as secreting organs with their most remarkable differentiation of epithelial lining but also serving as excretory ducts of the glomeruli. We do not find any other organ of the body presenting the same character of blood vessels or the same circulation. The supply of blood to these organs is simply enormous. Landergren has estimated that in one minute under the action of strong diuretics the amount of blood which passes through the kidney is equal to the weight of that organ. In comparison with other organs thus it will be seen, that the blood supply is from four to nineteen times greater. The vessels of the glomeruli which we are told are capillaries, differ in many respects from those ordinarily found. The pressure within them is high as they spring directly from arteries of a relatively large caliber. The pressure outside of them is low, by reason of the fact that a space exists and they are protected

from tissue pressure by Bowman's capsule. There is a corresponding low pressure in the tubule, the epithelial lining preventing tissue pressure. While this low pressure exists during normal secretion or excretion, it must also be stated that secretion takes place during various pathological conditions when there is a greatly increased pressure. (I am speaking now of the pressure within the capsule and the tubule, not the blood pressure). The blood pressure in the glomerular vessels is high for reasons stated above. After the blood has passed through the glomerular vessels, it immediately enters a second series of long capillaries which wind about the proximal convoluted tubules. One can fully appreciate this rich plexus by a glance at an injected specimen of the kidney. From this second capillary plexus, the blood enters many thin walled veins. The pressure in these veins is low and the current very slow. Both pressure and current having been nearly obliterated by the blood having to pass through two intervening capillary systems between the terminal arteries and the veins. It is right here in these veins where foreign cells and bacteria have a great tendency to accumulate because of the low pressure and slow current. Another important factor in the circulation of the kidneys is its rich supply of end arteries. For example the interlobular arteries ending in a blind extremity with no direct anastomosis. They give off small arterial twigs which very quickly branch to form the vessels of the glomeruli. It will thus be seen that this vascular arrangement not only helps to raise the pressure in the vessels of the glomeruli but also that in vessels from which they are formed. Again these end arteries are very favorable places for the lodgment of emboli, producing embolism and the resulting infarction.

I must also call your attention to the marked capacity for repair of injury in the kidney, while it possesses very little capacity for perfect regeneration. "The law of inverse relation between high differentiation of structure and capacity for regeneration holds good in the kidney as does also the law that capacity for

*Read by title before the Vermont State Medical Society at Barre, Vermont, October 12th, 1906.

both regeneration and repair diminish with age."

The flow of blood through the kidney is regulated by general arterial pressure and the amount of dilation of the renal vessels. Under normal conditions, the kidneys are eliminating products of tissue waste such for example as urea. Their activity is excited by an increase of blood volume due to an increase of water, serving as they do to regulate the concentration of the blood. In diseased conditions, they are chiefly concerned in removing abnormal soluble substances. These substances may have been introduced from without, or formed in the body by faulty metabolism, or by bacterial action.

The kidneys like many other organs show marked changes as a part of the declining processes of old age. This we look upon as physiological, though the changes consist in destruction and degenerating of the secreting cells and an increase of connective tissue. It is quite difficult for us to understand or to interpret just how much of these senile changes are due to an impaired circulation from arterial disease, from the gradual wearing out of tissue during an active life or from the accumulated effect of slight lesions which have constantly increased the inability of repair.

The most easily understood kidney lesions are local in character and due to some bacterial invasion. These bacteria are brought to the kidneys through the blood streams or from the lower urinary passages.

There is another class of kidney lesions, the etiology and pathology of which is more difficult to understand; such for example as acute, sub-acute, and chronic diffuse lesions, not due to changes in the flow of blood or urine, nor to the immediate action of bacteria. It is the more important members of this group of lesions to which I call your attention. I must ask you to keep in mind, however, that we are dealing with degeneration and inflammation of a glandular structure, possessing a highly differentiated parenchyma, a most wonderful and complicated vascular supply, with a delicate and complex connective tissue stroma.

The term nephritis is applied to a number of forms of degeneration and inflammation of the kidney substance. It may be acute or chronic; and parenchymatous, diffuse or interstitial. The classification of the different types of this disease that express the chief anatomical

changes seems to be the most rational and quite universally accepted. The multiplicity of terms that have been employed, some from a pathological and some from a clinical point of view, are confusing and misleading as many of them have no reason for their existence whatever.

When the most conspicuous feature is a degenerative process of the epithelium of the glomeruli and tubules, we shall call it parenchymatous nephritis, acute or chronic. When to these degenerative processes is added a vascular reaction with a formation of an exudate, together with some proliferative changes in the connective tissues between the tubular and around the glomeruli, we shall term this diffuse nephritis, acute or chronic. When the changes are exudative and proliferative, chiefly confined to the connective tissue with but slight parenchymatous degeneration, we shall call this interstitial nephritis, acute and chronic.

ETIOLOGY.

The following are the principal causes of acute nephritis:

(1). Exposure to cold and wet is a most common cause. The disease is particularly liable to follow exposure after a drinking debauch.

(2). The poisons of specific fevers, such as scarlet fever, typhoid fever, measles, diphtheria, small pox, chicken pox, malaria, cholera, yellow fever, meningitis, and rarely dysentery. Acute nephritis is sometimes associated with syphilis and tuberculosis. It is also occasionally found in septicaemia and acute tonsillitis.

(3). There are certain toxic agents such as turpentine, cantharides, potassium chlorate, carbolic acid, arsenic, mercury, and phosphorus, that may cause more than a simple congestion by terminating in acute nephritis.

(4). Pregnancy is given as a cause although it has not been definitely proven whether it is due to pressure on the renal vein or to toxic products that may have been formed, not as a result of, but coincident with pregnancy.

(5). Nephritis is sometimes seen in connection with extensive skin lesions, such as burns and chronic skin diseases.

(6). In a small proportion of cases, nephritis results from an ascending infection from the bladder or ureter, or from some external source as a psoas abscess.

(7). Sometimes a chronic congestion of the kidney as the result of some cardiac or pulmonary disease may give us a low grade of renal inflammation.

PATHOLOGY OF ACUTE NEPHRITIS.

(a). *Glomerular Changes.* As the majority of cases of acute nephritis are due to toxic agents brought to the kidneys through the blood vessels, the tufts suffer first. There are degenerative changes in the glomerular vessels. They become filled with cells and thrombi. The epithelium of the tuft and Bowman's capsule also suffer and become filled with leucocytes and red cells. Hyaline degeneration of this exudate as well as the wall of the capillaries is a common result. These changes are most beautifully seen in scarlatinal nephritis also termed glomerulo-nephritis.

(b). *Tubular changes.* The changes in the tubular epithelium are distinctly degenerative and consist of cloudy swelling, fatty and hyaline degeneration. The epithelial cells are much swollen, coarsely granular, striations lost, nuclear obscure and presenting an appearance not unlike ground glass. There is a marked accumulation in the convoluted tubules of leucocytes, blood corpuscles and altered cells which cause the enlargement and swelling of the organ.

(c). *Interstitial Changes.* In the mild form of interstitial nephritis there is simply an inflammatory exudate between the tubules which consists of serum mixed with leucocytes, red cells and some fibrin. In the more severe forms there is a marked infiltration of small round cells around the capsule and between the tubule. These changes may be uniform throughout the organ or localized.

Councilman, to whom I am indebted for much material in this paper, describes an acute interstitial non-suppurative nephritis which he says gives us the least trouble; It is found most notably in the acute exanthemata of children. There is present in the blood vessels an interstitial tissue of the kidney cells that belong to the lymphoid series, which are formed in the bone marrow, spleen, and lymph nodes and brought to the kidneys by the blood stream. They accumulate first in the renal veins, then pass to the interstitial tissue where they actively proliferate. Unless they accumulate in sufficient numbers to interfere with

circulation, or nutrition, they will not cause any disturbance of function.

Having described in a general way the changes that take place in the different parts of the kidney structure in the acute lesion, I will now apply them to the several forms of the disease.

In acute parenchymatous nephritis, the process is a degenerative one, more so than one of inflammation. The kidney is enlarged, swollen, and paler in color. Its outer surface is smooth and the capsule strips off easily. On section the cut surface rises above the edges of the capsule and the most marked changes are found in the cortex which is thicker and lighter in color. On microscopical examination, it will seem that the epithelium of the tubule, and to a certain extent that covering the glomeruli is most affected. The cells are swollen, cloudy and coarsely granular, together with considerable desquamation. There is a slight vascular reaction as is evidenced by a few leucocytes and red cells found within the tubules. There is no round cell infiltration and the process is so distinctly a degenerative one that the terms acute catarrhal, degenerative or desquamative nephritis are applicable. This affection is of short duration.

I have already described the picture in an acute glomerulo-nephritis. It is but a part of a parenchymatous change, the chief feature of which is confined to the vessels of the glomeruli. The vascular reaction is more prominent and the disease is one of great severity.

Acute diffuse nephritis is the form most frequently seen. It may develop from the two above described. The kidney is much larger than normal. It is sometimes red in color from excessive congestion, or light in color from excessive degeneration of the epithelium. There is marked vascular reaction with exudative changes, such as round cell infiltration and proliferation in the connective tissue. The process is a diffuse one affecting both parenchyma and connective tissue more or less equally. The changes in the parenchyma, result in cloudy swelling, hyaline degeneration and if the disease continues, fatty degeneration and necrosis. Necrosis may be primary in very severe toxic cases. The changes in the connective tissue are at first those due to vascular reaction, but later they are proliferative and are sure to leave an infallible evidence that injury has some time been done to the kid-

ney. When the vascular reaction is very intense, we may find linear or punctate hemorrhages between the tubule and into the malpighian bodies and to this condition the term hemorrhagic nephritis is applied.

Acute interstitial non-suppurative nephritis, I have already described to some extent. The kidney is more or less opaque and grayish in color with irregular hemorrhagic areas giving to it a mottled appearance. The markings on section are somewhat obscure, although there is no great contrast between cortex and medulla. The interstitial changes may be localized or quite diffuse. They are most often seen at the junction of cortex and medulla, under the capsule or in the region of the glomeruli. The blood vessels are always involved and there is connective tissue proliferation. The parenchymatous cells may or may not be affected and for this reason we may or may not get albumen and casts in the urine. An examination of the urine under such conditions might be entirely misleading.

Suppurative nephritis is the result of metastatic involvement of the kidney as a part of pyemia, or from ascending infection from a pyelitis or suppurative inflammation of the long urinary tract, the pathology of which is the same as that of abscess formation elsewhere with but slight variation.

PATHOLOGY OF CHRONIC NEPHRITIS.

All that has been given as etiological factors in producing the acute forms must be included in the etiology of chronic nephritis. It must frequently follow one or more acute attacks, though sometimes it comes on insiduously. Alcoholism, irritants in the blood, and changes in the cardio-vascular system and blood pressure are important causes.

Just how so great a difference in the degree of damage to a kidney which accompanies a diffuse arterio-sclerosis is brought about we do not know. We do know, however, that the changes consist in a degeneration and destruction of the parenchyma, with proliferation of the interstitial tissue. These changes are not at all unlike those seen in a chronic Bright's without an arterio-sclerosis. Councilman tells us that nearly all interstitial changes follow some damage to the parenchyma. He says there is no evidence in favor of a general fibrous or independent increase of connective

tissue in arterio-sclerosis. There is a marked disturbance in circulation when arterio-sclerosis exists with a loss of regulatory power, and this may augment or establish a tendency to productive changes. Faulty metabolism that results from the vascular changes may cause injurious substances in the blood, that may stimulate connective proliferation. It is, therefore, quite likely that this condition in the kidneys is due to the combined effect of a great many factors, and not to any one.

We shall recognize two forms of chronic nephritis: (1) Chronic Parenchymatous Nephritis, which is always more or less diffuse, affecting the whole organ. (2) Chronic Interstitial Nephritis.

(1). In chronic parenchymatous nephritis, the early changes are as follows: Kidney enlarged, cortex increased in width, and the color grayish or yellowish in consequence of the degeneration of the epithelium which is swollen and anaemic. The pyramids are red and swollen, but if much compressed, they may be light. The consistency is diminished and the capsule strips easily. We are very liable to get the formation of cysts upon the surface of the organ. It will be seen that we have thus described a large white kidney.

In the later stages of a chronic parenchymatous nephritis the degenerative changes become most pronounced. The organ is lighter in color and more fatty in appearance. The interstitial proliferation is more marked, which finally by contraction reduces the kidney in size and makes it more firm. The capsule now strips off with some difficulty, having found adhesion with the cortex. This last picture is one of a small white kidney or a fatty contracted kidney.

(2). In chronic interstitial nephritis we recognize two forms, primary and secondary.

Primary chronic interstitial nephritis, sometimes called Red Granular Kidney or Arterio-sclerotic Nephritis, is that form probably produced by irritants brought through the circulation, increase blood pressure, and without any known acute process having preceded it. It occurs in alcoholism, chronic plumbism, syphilis and the chronic cachexia. It is frequently associated with a diffuse arterio-sclerosis.

Secondary chronic interstitial nephritis is but the terminal stage of a chronic parenchymatous. There is marked hyperplasia of the interstitial

tissue with degeneration and atrophy of the parenchyma. The organ is reduced in size and very irregular on the outer surface. The capsule is adherent to the underlying tissue and strips off with difficulty. On section the tissue is firmer than normal, light or yellowish in color, if fatty, grayish-brown or gray if very sclerotic. The cortex may be nearly normal in thickness or much reduced. The small blood vessels are gaping and sclerotic.

Microscopically the epithelium of the tubules is granular, fatty and atrophic. The cells are detached and are found in great number in the lumen of the tubules. The tubules are greatly compressed by the increase of connective tissue and may be closed, forming cysts in their proximal ends. Bowman capsule is thickened and the malpighian bodies distended and compressed. The overgrowth of connective tissue may be very irregular in its distribution and may vary greatly in amount.

I have purposely omitted any consideration of tube-casts for I believe they belong to the subject of the paper which follows.

NEPHRITIS—CLINICAL HISTORY AND DIAGNOSIS.*

By W. H. Lane, M. D., Brattleboro, Vt.

In presenting to you this paper upon the clinical history and diagnosis of nephritis, I wish to preface my remarks by stating that to me this pathological condition is one of the most interesting in the whole realm of medicine. In the brief space of time allotted to me this morning, it will be only possible to briefly touch upon the most important symptoms and those manifestations which go to make the diagnosis clear in the more obscure cases. And it is right here in these obscure cases that we are apt to pass over lightly a condition, which if thoroughly and conscientiously studied would leave not a shadow of a doubt as to the real and primary cause of much discomfort and suffering. Of course that applies more especially to the chronic form of kidney disease. There is no excuse for any of us to overlook a condition of acute Bright's disease. The symptoms which attend a case of acute nephri-

tis, and which usually present themselves quite distinctly at our first visit are after this order:

There is noticed a slight swelling or puffiness in the face below the eyes. This edema rapidly extends to the upper extremities and trunk, and thence, if the disease does not abate, into the lower extremities and abdominal walls, and in extreme cases it sometimes invades the scrotum and prepuce. The great serous sacs are the last to fill with fluid in acute nephritis, although in bad cases ascites not infrequently occurs, while there may be also transudation into the plural and pericardial cavities. The degree assumed by the general anasarca is sometimes enormous, resulting in the most extreme distortions; the eyes may be actually closed by the swelling, and movement of the lower limbs rendered almost impossible. While dropsy is a very frequent symptom in acute nephritis, it is not, however, always present. It is more particularly in the nephritis after scarlet fever and exposure to cold that it is a decided and almost invariable symptom; after the other infectious diseases it is frequently absent. Fever is not a marked symptom in acute nephritis. Indeed, it is generally absent unless as a part of the disease causing it. To a less degree the same is true of pain. It is mostly absent, and when present, amounts only to a dull ache, as a rule. Chilliness and rigors sometimes introduce the disease; nausea and vomiting are not infrequent in the beginning; sometimes these symptoms usher in the disease. The pulse is quite characteristically altered. While not materially changed in rate, it exhibits a decided increase in tension, as shown by the broader apex and diminished diastolic element.

Upon uremia, I shall not touch, leaving that to be considered under complications and sequelae. The urine presents a picture which is almost pathognomonic of the disease. Simultaneously with and sometimes earlier than the dropsical symptoms is a diminution in the quantity and alteration in the quality of the urine. The former may amount to actual suppression. The urine is darker than natural, and often smoke-hued from the effect of the natural acid reaction on a small quantity of blood. Should the urine become alkaline, the color becomes a brighter red. The smoke-hue also becomes red, if the quantity of blood is large, which is not often the case, but here again the peculiar tint returns, if the blood is allowed to

*Read by title at the meeting of the Vermont State Medical Society, at Barre, Oct. 12, 1906.

subside. If the urine is very small in quantity and there is much sediment, the former is turbid and may have a brownish tinge. The blood may disappear to return again. The specific gravity of the urine is at first high, 1025 to 1030, mainly due to the diminished quantity, while the solids remain nearly normal. Later, if the symptoms abate, the specific gravity diminishes with the increase in quantity, or if the disease lasts for any length of time or passes over into the chronic form, a small reduction in weight occurs. This may result in a specific gravity as low as 1010. The chief alteration is the presence of albumen. This is generally copious, the urine often solidifying upon the application of heat and acid, while it constantly contains more than one-half its bulk. This albumen is derived in part from the extravasated blood and in part is the result of the inflammatory action. If estimated by weight, it will equal 5-10 to 1%, and in rare instances only, to $1\frac{1}{2}\%$.

Next in importance, is the reduction in the twenty-four hours' secretion of urea, which is invariable until convalescence sets in. The phosphates, chlorides and sulphates are also reduced. As to sediment, the urine in all cases of acute nephritis deposits a sediment, which in the early stages, at least, is copious, and brownish or reddish in hue; later it may diminish in amount and assume a lighter color. Microscopical examination reveals this deposit to be made up mainly of casts of the uriniferous tubules, free cells from these same tubules, blood corpuscles, red and colorless, and very constantly crystals of uric acid together with granular urates. The casts include the varieties known as epithelial, blood, hyaline, waxy and dark granular casts. Pus casts and numerous leucocytes are also sometimes present. The hyaline casts are probably pure fibrin. The epithelial casts consist of the same material to which epithelial cells of the tubules are attached and blood corpuscles caught in the coagulated exudate. The epithelium thus attached, as well as that which is found free in the urine is variously altered. Some of the cells are merely the seat of cloudy swelling; others are decidedly granular, while others again are converted into compound granule-cells or granular fatty cells by complete fatty degeneration. Casts containing a few oil drops may also be present, but much oil is not found until the case has continued for some time, in fact, become chronic.

Along with the diminished quantity of urine is often met a disposition to frequent micturition, the efforts at which are only partially successful, resulting in the emission of from a few drops to a tablespoonful. This frequent desire to pass water is purely a reflex symptom; the bladder being free from the disease. It sometimes precedes, in point of time, all other symptoms. It is by no means constant. The diagnosis of acute nephritis is ordinarily quite easy. The previous history, the usually easily recognized cause, the suddenness of the attack, the scanty and bloody urine with its high specific gravity, the copious albuminuria, the blood and epithelial and dark granular casts, the blood corpuscles, free epithelium and granular fatty cells in the urine—these are a combination of symptoms which admit of only one interpretation. At a later stage, the absence of one or more of these symptoms may somewhat increase the difficulty, but it is scarcely possible to err if those which remain are duly considered.

It must be remembered also that an acute condition such as this described may supervene upon any one of the chronic forms of Bright's disease, and this may give rise to some difficulty of diagnosis, but if there be hypertrophy of the left ventricle it is likely that there was chronic disease before. In the latter case, too, there is apt to have been anemia existing for some time, previous edema, headache and other symptoms of chronic Bright's disease. Febrile albuminuria is quite often mistaken for acute nephritis, though the distinction is easy. In pure febrile albuminuria, the quantity of albumen is very small, and while there may rarely be a few hyaline casts, there are no blood discs; no epithelial casts. The absence of dropsy is of no significance, for in the acute nephritis of the infectious diseases, except scarlet fever, there very seldom is dropsy. There is often febrile albuminuria in scarlet fever, which is quite different from the nephritis occasioned by this disease. It occurs early, and in this stage the other features of febrile albuminuria obtain while the scarlatinal nephritis does not come on until after the end of the second week.

Thus, have we a more or less incomplete picture of the symptoms and diagnosis of acute nephritis.

In my consideration of the chronic form of Bright's disease I shall direct my remarks almost entirely to the interstitial variety. The

great obscurity as to the origin of a large majority of cases of contracted kidney is only equalled by that of the insidiousness of their approach. The beginning of the disease is certainly not characterized by any distinctive symptoms; and its progress is often unmarked by any, until those of uremia mark the beginning of the end. To the observing physician, some obscure symptoms may suggest an examination of the urine; or the peculiar tense and bounding pulse of hypertrophy of the left ventricle, or the mere tangible symptom of a slight swelling of the feet or ankles, recognizable only at night or through the unexpected tightness of a boot, may lead to the same examination.

Attention being called to the urine, it will be found to present characters which are more or less distinctive and lead easily to a diagnosis. It is, when freshly passed, acid in reaction, copious, often exceeding the normal amount, never scanty except in the last stages of the disease. The quantity may reach ninety ounces. The patient very commonly has to rise at night, probably not more than once or twice, to pass his water. There may be corresponding thirst. Consequently, the urine is light in color and of low specific gravity—1005 to 1015—and contains a trifling or moderate flocculent sediment. It is generally albuminous, but the albumin is small in amount and may be temporarily absent, or it may be absent before a meal and present after it. Later, however, it becomes constant. It seldom exceeds 1-10 the bulk of fluid tested, and is very constantly a good deal less, showing a delicate white line by Heller's nitric acid test. Tube casts are present, but not usually numerous. They are almost solely hyaline, and pale granular. Some of the hyaline casts are delicately so, requiring nice illumination for their detection; others are distinct and sharply cut; others still contain two or three glistening oil drops. Casts may at times be absent and again reappear, as is the case with albumin.

Toward the termination of cases of interstitial nephritis the urine diminishes in quantity, the specific increase and the casts become much more numerous, and include among them highly granular or dark granular, and occasionally even blood casts in addition to those alluded to, and there are sometimes a few blood discs earlier. The urea is also diminished sooner or later, and in this manner the low specific gravi-

ty is contributed to. This fall becomes marked toward the close, accounting for the uremic symptoms which often first announce the disease. All the remaining normal constituents may be said in general terms to be diminished.

As to the other symptoms, a feeling of unaccountable weakness or being tired is very often present, but is a symptom which occurs in many conditions and should only be considered as suggestive. Slight edema about the feet and ankles is often present, being so slight as to escape detection, or is discovered accidentally. When present it is significant, but it is often entirely wanting.

Hypertrophy of the left ventricle of the heart without valvular disease is so constant as to be alone suggestive of the disease. No case of interstitial nephritis has existed for any length of time without this symptom supervening, and as few cases are discovered until they have existed a good while, few are found without hypertrophy. In more than one-half at least of cases there is evident hypertrophy. It is recognized not at first so much by the resulting enlarged percussion area as by the sharp accentuation of the second aortic sound. Corresponding to this, the pulse is hard and resisting, indicating high tension and thickening. These two symptoms have, therefore, great diagnostic value. Sclerosis is distinguished from tension by obliterating the blood current by pressure and feeling the artery beyond this point. The sclerosed vessel continues tangible, that of high tension disappears. As a symptom of this stage is often an uncomfortable pulsation felt in the head and even other parts of the body.

As the disease becomes more advanced there are added cardiac distress, palpitation, dyspnea, and reduplication of the first sound. The hypertrophy of the heart is conservative and all goes well as long as the power of the heart lasts. When the latter begins to fail and dilation appears the blood pressure diminishes, and with it begins a train of symptoms, among which diminished secretion of urine and dropsy are the most conspicuous along with gallop rhythm, dyspnea, palpitation and dizziness. These symptoms may again be averted for a time by hypertrophy of the right ventricle, which is a signal of disturbed compensation.

Dimness of vision due to retinitis albuminurica is a characteristic symptom. It is often the first recognized, and hence the diagnosis is

frequently first made by the ophthalmologist. It is a serious symptom, generally considered a sign of advanced disease.

The diagnosis of an interstitial nephritis is usually easy, if in any way an examination of the urine is suggested. The increased quantity, the low specific gravity, small albuminuria, delicate hyaline, pale granular casts, and hypertrophy of the left ventricle, even in the absence of other symptoms, are sufficiently distinctive. The conditions which should suggest such an examination are a feeling of constant weariness, slight swelling of the feet, drowsiness, frequent headaches, confused intellect, dyspeptic symptoms, obstinate nausea, delirium, coma, and convulsions. High arterial tension should always suggest an examination of the urine.

NEPHRITIS—COMPLICATIONS AND SEQUELAE.*

By J. H. Blodgett, M. D., Saxtons River, Vt.

The late Professor Wood of Harvard College taught the following outline for the clinical diagnosis of kidney disease and it is here stated because there is such a lack of uniformity among medical writers on this subject.

I. CONGESTION OF THE KIDNEY.

- (a). Active as in direct processes.
- (b). Passive as in heart disease.

2. ACUTE NEPHRITIS.

The multiplicity of names under this caption serves only to confuse.

3. CHRONIC DIFFUSE NEPHRITIS.

The large white kidney.

4. CHRONIC INTERSTITIAL NEPHRITIS.

The contracted kidney. The terminal stage of the disease.

These divisions are considered stages of one process in logical order. This sequence is denied, or at least not recognized, by some authorities who consider that chronic forms develop independent of any acute process.

The actual demonstration of the beginning of nephritis, except in the sharply acute, is

infrequent and argument is necessarily enshrouded in doubt. Sufficient is it to say that this division of the subject serves clinical convenience.

Passing to some phases of nephritis, which may with propriety be considered complications, though usually classed under symptoms, we note first the

EDEMA OF BRIGIT'S DISEASE.

This is usually first recognized in the face, especially as puffiness of the eyelids, but rapidly involves the sub-cutaneous tissues of the extremities and genitals, possibly extending to the abdominal and pleural cavities. Chronic diffuse nephritis as a rule shows the most extravasation of fluid and may involve the serous cavities, or the brain even. In the chronic interstitial type edema is not so constant a symptom but may come on sharply as an edema of the glottis, proving rapidly fatal, or a congestion of one or both lungs.

A case in point was a man of forty-five years, indoor worker, who had had attacks of sick-headache for years. He returned from work apparently as well as usual. When about to retire, his chest began to fill rapidly, cough and expectoration were marked. The expectoration was bloody and there was considerable dyspnea. He of course was greatly alarmed. Physical examination showed no valvular lesion of heart. There was no evidence of liver trouble. Temperature was normal and the pulse but little accelerated. The left chest showed abundant moist rales. Right was clear. The urine showed albumen. Pilocarpin, sweats, and diuretics brought him out clear next morning, but there was considerable weakness. Microscopically urine showed interstitial nephritis, but nothing could be learned from the urine, except during an exacerbation.

In the terminal stage with cardiac involvement and fluid everywhere the problem of treatment is difficult. Five to seven grains of diuretin combined with three grains of calomel every four hours will certainly clear up the fluid, adding saline for watery movements for a time if needed. The action of diuretin upon a faltering heart is similar to that of digitalis, and treatment need not be neglected on account of weakness. The situation is desperate and we have much to gain and little to lose. In the acutely inflamed kidney, the irritant diuretics should not of course be used.

*Read by title at the meeting of the Vermont State Medical Society, at Barre, Oct. 12, 1906.

BRONCHITIS.

The bronchitis complicating nephritis is at the outset only a manifestation of edema or passive congestion of the lungs. Superimposed may be an acute infective process of the ordinary or specific bacteria. The presence or absence of active symptoms differentiates as a rule. It is hardly necessary to note that treatment must be directed to the original kidney lesion for the relief of congestion.

PNEUMONIA.

The same explanations hold for pneumonia. Here we have the added specific infection of the pneumococcus, or irritation may be from ether administration, of both kidney and respiratory tract. A low grade process perhaps, but fraught with danger.

A patient who had all of her teeth removed under ether took an electric car ride of five miles as soon as able to walk to the car. An ether pneumonia developed; suppurated and ruptured into the plura. Early surgical interference failed to relieve and the patient succumbed. There was a possibility of a latent tubercular process here which should be mentioned. Kidney disease had not been demonstrated but probably was present.

AMYLOID DISEASE.

Osler considers this disease simply an event in the progress of chronic nephritis, occurring most commonly in the chronic diffuse type following fever or the cachectic states. It does not occur in every case of chronic Bright's and hence in a sense is a complication. It is usually a part of a general process involving one or more of the abdominal viscera.

Anatomically, in gross the kidney is large and pale, surface smooth and the venae stellatae well marked.

Microscopically, it is sufficient to say the starchy change begins in the malpighian tufts and involves all the vessels. Late in the disease the tubules are affected. Signs of diffuse nephritis are present clinically. The urinary examination alone may not indicate the presence of this degeneration.

A case in point was reported by the writer in the *Medical Record* for December 13, 1902, under the title of "Pancreatic Disease. The patient a woman of forty came under observation a week prior to death with extreme digestive disturbance, ascites and edema of limbs;

marked anemia and malnutrition. Urinary examination showed an advanced chronic nephritis but mind was clear. There was an early history of hip joint disease.

Autopsy showed liver, spleen, kidney and pancreas so far degenerated that each organ after breaking the capsule could be crumbled between the fingers. Liver and pancreas were most involved. The kidney seemed in the best state of preservation. The color of the organs was a brownish white, something like the rough side of sole leather. Dr. Lindsley reported the whole process to be amyloid degeneration of all the organs examined. The best diagnosis made before autopsy was chronic diffuse nephritis, but it was appreciated that it did not explain all of the phenomena present.

ANEMIA.

The anemia of nephritis deserves a word in passing. Schmidt first showed clearly the exact nature of the hydremia of the blood which occurs in nephritis. In patients with marked edema and albuminuria he found loss in the specific gravity of the whole blood and of the serum. The red cells remained nearly normal in gravity but were much reduced in bulk. There is marked variation in composition of the blood in the different stages of the disease.

The cases with marked albumen and edema show anemia. The usual condition is one of moderate chlorotic anemia. The majority of the cases show three to five million red cells, 40 to 80 per cent. of hemoglobin. Considerable polycythemia is not infrequently present. Cases with less than two million red cells are reported by Cabot. The hemoglobin index may be high in these cases. Ewing states that the progressive anemia of the average case is clearly referable to loss of albumen of the serum and general malnutrition. There seems to be direct connection between hydremia and edema. Pernicious anemia does develop and added causes for it are lesions in several viscera, viz.: Chronic gastritis, cirrhosis of liver, arterio-sclerosis, etc.

CHEMISTRY OF THE BLOOD IN NEPHRITIS.

Chemical analysis gives us the clearest insight into blood changes. The specific gravity is regularly reduced as is also that of the serum while its volume remains high. Hamerschlag considered that edema had more effect upon the gravity of the serum than did albu-

minuria, and when edema was absent the gravity of the serum remained about normal.

Leucocytosis in acute nephritis has a maximum record of 22,000. In chronic nephritis without edema it is about normal. Cabot records a leucocytosis with a maximum of 44,000 in uremia in fourteen out of nineteen cases. In acute nephritis with edema and albuminuria the blood changes are similar to those of chronic diffuse nephritis with identical symptoms. In chronic interstitial nephritis the absence of edema and albuminuria allows the blood to remain near the normal during the latent stage. Uremia shows the changes noted.

CHANGES IN BLOOD VESSELS OF NEPHRITIS.

Having considered changes in the circulating medium of the body, we must remember also the more marked alterations which occur in the heart and blood vessels themselves during nephritis. Chronic interstitial nephritis, the genuine contracted kidney, is essentially a disease of kidneys, arteries and heart combined. Permanent high blood pressure is one of the salient features of the disease. Blood pressure is such a factor in mortality in the later years of life that it is proper for us to consider it briefly.

Hypertension presupposes disease of the smaller arteries of the renal circulation and elsewhere. Disease of the smaller arteries creates resistance to the onward flow of the blood. Resistance to the onward flow of the blood calls for more motive power or hypertrophy of the heart. Increased resistance with increased power means greatly increased tension of the arteries or hypertension, hence the degree of hypertension may be the measure of arterial destruction and a very important factor diagnostically in nephritis.

Experimentally it is found that permanent high tension cannot exist without disease of the splanchnic circulation, or in other words, disease of the arteries and veins supplied by the splanchnic nerves. These large abdominal vessels are the store houses of blood and maintain the equilibrium of circulation. Even in arterio-sclerosis there is not hypertension unless these splanchnic vessels are involved.

In 1836 Bright postulated for the coincident involvement of heart and kidney an altered composition of the blood which he said might stimulate the heart abnormally or increase the resistance in the smaller blood vessels, and this

theory has not been changed much, though there have been many added facts. Other factors which may bear on hypertension besides increased resistance and loss of splanchnic regulation are vaso-motor spasms due to supposed toxins in the blood, and actual anatomical changes in the blood vessels.

Janeway writes clearly on this subject and his apparatus, the sphygmomanometer, for measuring blood pressure is apparently of service. A pressure of 100 to 150 m. m., according to this instrument, is normal. Pressure running 180 to 200 up is diagnostic of hypertension, hence of renal or arterial disease. A feature of nephritis with hypertrophied or dilated heart and hypertension is the danger of cerebral hemorrhage. It is impossible to measure arterial tension in the brain, but extreme tension of the arteries within reach make us fear rupture of cerebral vessels. The degenerative changes incident to advanced life are in the majority of cases, the most powerful elements in the production of cerebral hemorrhage. This tendency is augmented by renal disease according to Gowers.

Charcot found renal disease in one-third of his cases of cerebral hemorrhage and Gowers thinks this is probably about the true proportion. The strain on the vessels from hypertrophy of the heart whether it helps to produce degeneration or not must increase the tendency to dilatation and rupture. Bright's disease is one of the chief causes of miliary aneurysm and cerebral hemorrhage in persons between thirty and forty years of age. Therefore cerebral hemorrhage must be counted a possible complication of nephritis.

Chronic diffuse nephritis may show hypertension but not so constantly as interstitial. Acute nephritis has not so marked an influence on hypertension and in amyloid degeneration cardiac hypertrophy fails and tension may be subnormal. Careful tactile observation of the degree of hypertension in cases of pending uremia is then one of our clear responsibilities in every case.

UREMIA.

Turning from the domain of speculation to that of painful reality, we are confronted with that most dreaded symptom or complication, if you will, the auto-intoxication of nephritis. I do not need to go over the picture. It is familiar to you all from the slight chilly sensation to the wild delirium of fatal coma.

Etiology. Very numerous chemical analyses have failed as yet to demonstrate the true nature of uremic toxemia. Urea in the blood was believed by Frerichs and others to be the explanation of the phenomena. Landois showed that intravenous injections of urea or local applications to the medulla produced no toxic effect. Neither has its derivative, ammonium carbonate, been found toxic to the nervous system. Kreatinin has likewise been set aside, though increased in the uremic subject. Potassium in the blood has been regarded as the cause, uremia being potassium poisoning. Diminished alkalescence was noted in uremic blood by Von Jaksh. The attempt to establish the theory of acid intoxication has not been successful, although uric acid may be in excess in uremia as in other conditions, it appears to be only a secondary condition of the blood. Brown Sequard suggests that the kidney excretes a tonic product of its own, which when interfered with may be the cause of the uremic seizure.

The present tendency is to regard the uremic seizure as the result of toxic action of a variety of nitrogenous metabolic products which are supposed to be retained in the system. Some are ptomains, and urotoxins, others are narcotics, while still others lower temperature, contract pupils or produce salivation. (Ewing).

Symptoms. For convenience Osler classifies the symptoms under the headings, Cerebral, Dyspneic and Gastro-intestinal manifestations.

Cerebral Symptoms. (a), Mania. This may come on abruptly in patients who have shown no previous mental trouble. A case in point was a patient with combined kidney and heart disease, who had been troubled with dyspnea and insomnia at intervals for several months. While in the kitchen he suddenly seized the butcher knife, and the lives of all present were in jeopardy until he had been quieted by hypodermics. Later he fell upon the floor in what, from description, was apparently a uremic seizure, and finally when having an afternoon of comfort laid down for sleep and

"Slept the sleep which knows not breaking,
Night of toil or morn of waking."

None of the family knew when the transition came.

(b), Delusional Insanity, mainly of persecution, is sometimes observed or melancholia may supervene.

Convulsions are perhaps the more common. They may occur unexpectedly or after pain in the head and general restlessness. A sequel to the convulsion sometimes is blindness, uremic amaurosis which may persist for several days.

A patient coming to the office ten days ago had carried a progressing nephritis since Labor Day, and reached a stage where he could no longer see his milk tickets, for he was a milk man, yet had made his usual morning trip of ten miles. He had had no convulsions, examination showed classic signs of diffuse nephritis with exacerbation.

Coma. No description is needed of this phase so familiar.

Local Palsies. Hemiplegia or monoplegia occur with no brain lesion, except localized or diffused edema. These cases may simulate almost every form of organic paralysis of cerebral origin.

A patient still lives in our village who has chronic interstitial nephritis, manifested by acute edema of left lung, later reported to have had appendicitis and still later hemiplegia with the case diagnosed as shock. Is it too much to say that one-half of the cases diagnosed by the careless physician as shocks are uremic seizures in the course of chronic nephritis? The writer certainly believes such to be the case. Treatment of case cannot be intelligently directed with so faulty a diagnosis.

Uremic dyspnea may be continuous, paroxysmal, or Cheyne Stokes, or the indescribable restlessness of which all are familiar.

Gastro-intestinal symptoms are of all grades from the continued irritation, sharp attacks of pain, simulating acute disease, as the case of appendicitis mentioned. Nausea, or uncontrollable vomiting, possibly diarrhoea with severe inflammation of the colon. Fever may or may not be present.

The diagnosis rests with the clinical history and signs present together with correct urinary examinations. The limits of this paper will not permit me to go into the differential diagnosis. Treatment will be considered by my colleagues.

Returning again to the question of high blood pressure, Janeway states that there seems little question that the uremic manifestations, headaches, vomiting, disturbances of consciousness, run closely parallel with blood pressure. They increase with hypertension and decrease with lowered tension of the cerebral circula-

tion. In pregnancy complicated with nephritis, when from reasons of the lochia urinary examinations are not practicable, or when convulsions seem pending, and urine is negative, the accurate measurement of blood pressure may be of great service.

After having presented you this resume of man's work on some of the complications of nephritis, we are yet compelled to admit that the sequel of chronic interstitial nephritis is death, Edebohls and decapsulation of the kidney notwithstanding.

Free use of standard works on this subject has been made, and especial acknowledgment is due the works of Ewing's Pathology of the Blood and Janeway's Clinical Study of Blood Pressure.

THE TREATMENT OF CHRONIC NEPHRITIS.*

By Schuyler W. Hammond, M. D., Rutland, Vt.

As in acute nephritis, nothing particularly new has come to my notice in treatment, and the vast majority of cases, with intelligent care, either recover or lapse into chronic nephritis, my paper will deal with the treatment of this disease in its chronic phases only.

Chronic nephritis, especially the interstitial variety, not being inconsistent with a tremendous amount of both physical and mental work for years is deserving of more consideration than it usually receives.

The treatment may be placed under hygienic, dietetic, medicinal and surgical heads.

By far the most important part of the treatment of chronic nephritis is to guide our patients properly as to their mode of living. They should lead tranquil lives and be free from mental worriments. They should keep regular hours, i. e., the work should be a prescribed number of hours daily, as should also the sleep.

I believe common sense teaches us that an animal fabric worn next the skin will keep that skin in a more excretory condition than a vegetable fabric; in other words, these patients should wear wool summer and winter.

It being a fact of common observation that a sudden chilling of the skin throws more work

upon the kidneys, we should warn these cases to avoid drafts of air, but in no wise does this prohibit fresh air, which is indispensable day and night.

When patients possess sufficient means they should be advised to live in warm climates during our rigorous winter months.

Daily warm baths are beneficial, followed by brisk friction of the skin, in order to keep surface circulation in as perfect working condition as possible.

The tendency at the present time is to feed patients suffering with chronic nephritis more liberally than formerly, especially as to variety. I believe, however, that we should stint as to quantity, the more where we have habitually heavy eaters.

Milk seems to lead with most physicians as coming nearest the ideal food in this disease, though we are constantly importuned by patients to give them more leeway in variety. Most cases may take with impunity the fresh vegetables of the finer-grained varieties, fruits, bread when stale, rice, sago, and even eggs, although an albuminous food, have been found by experiment not to increase the amount of albumen in the urine.

In the spring of 1903 Widal and Javal, physicians to Paris hospitals, conducted a somewhat elaborate series of experiments, the results of which tend to show that sodium chloride is a much more dangerous element in many food stuffs in nephritis than all the other component parts. Especially does sodium chloride seem harmful in chronic parenchymatous nephritis in increasing the amount of albumin and producing edema. These gentlemen go so far as to say that the favorable effect of milk, when used as a single article of diet, is by reason of its relative low percentage of chlorides as compared with usual food stuffs.

Indeed this seems to be a fact borne out in the case of Mr. B., 50 years of age, under treatment for four months for chronic parenchymatous nephritis. Following a series of uremic convulsions he was placed on an absolute milk diet. The albumin dropped from 50% to 25% by bulk. Twice have I yielded to his beggings for what he terms salty food, and in both instances has the albumin increased; edema, which has been slight as yet, becomes more pronounced, and the uremic headaches have become intolerable to the point of marked mental torpor.

*Read by title at the meeting of the Vermont State Medical Society, at Barre, Oct. 12, 1906.

I believe common table salt, in considerable quantities, to be absolutely injurious in cases of chronic parenchymatous nephritis.

Alcohol and all stimulants and narcotics, must be stricken forever from the dietary, though some physicians prescribe light wines with the meals.

There is no known medicine with a specific action, *per se*, tending to arrest or retard chronic nephritis. Special symptoms may often be for the time improved by appropriate drug treatment.

In chronic parenchymatous nephritis, if the urine is not low in quantity, but the urea is down and impending convulsions threaten, then the skin and bowels must be made for the time to do the work.

Hypodermics of pilocarpine, the sweat cabinet and a purge of calomel, elaterium, or croton oil will usually suffice.

If the urine is low in quantity, the salts of potash, as the citrate and acetate, usually take preference. Digitalis infusion is often used.

This procedure is also effectual in reducing dropsical effusions.

Some of the newer drugs or compounds, such as anasarcine, cannot, so far as can be ascertained, be stated to be without grave danger. The lost equilibrium between heart and kidneys may be temporarily restored, but sudden death has been reported following their use.

In chronic interstitial nephritis the nitrates are beneficial when associated with arteriosclerosis, or even for the high arterial union without sclerosis.

The iodides are in order in syphilitic and gouty subjects.

Kidney decapsulation for the cure of chronic Bright's disease is still in the experimental stage. The results, as reported by most surgeons, have not been as flattering as those by Edebohls, one of the claimants to priority in originating the operation.

About three years ago Dr. Guiteras sent communications to 150 surgeons interested in renal surgery, receiving replies from 42. The total number of cases reported by these surgeons was 120. Of these 16% were reported cured; 40% were improved; 11% were unimproved; 33% resulted in death.

Of recoveries, those cases suffering from chronic contracted kidney did best.

Recent letters sent to these same 42 surgeons resulted as follows: One-half this number re-

plied. They had performed the operation 40 times, resulting in one recovery, three improved, and with 33 deaths, (82% .

The theory of establishing a collateral circulation between the kidney and its fatty capsule is a pretty one, but such results cannot make the operation popular. Nephrotomy is still somewhat in favor with some European surgeons.

A report just compiled by the health department goes to show that the death rate of Montreal is larger than that of any important city of the continent and exceeds any of the large European centres. The rate during the last year was just a fraction less than 22 per 1,000, an increase of 2 per cent. over 1905. At the same time, the birth rate is shown to be the highest of any large city on the continent.

The discovery was reported recently of an indigenous plant in the Malay peninsula which had cured many Chinese of the opium habit. Edward Morell Holmes, curator of the Pharmaceutical Society of Great Britain, says the name of the plant does not appear to have been made known. Specimens of the plant in flower and fruit have been presented to the museum of the society by L. Wray, curator of the Taiping Museum, Perak. This gentleman, who is a careful botanist, has identified the plant as *combretum sundaicum*, Miquel. It accords well with Miquel's description, and there can be no doubt that it belongs to that species. It is a woody climber, with opposite leaves, in size and shape somewhat resembling that of the pear tree, and bears globular clusters of small white flowers arranged in panicles, the flower being followed by a red fruit about an inch long, furnished with four longitudinal wings. The plant is abundant on the plains around Kuala Lumpur, in Salangore, Malay peninsula. The properties of the *combretaceae*, the natural order to which it belongs, are very little known; some are used in malarial fevers, two are known to possess vernifuge properties and one is used for poisoning bats. Tests applied in the research laboratory of the Pharmaceutical Society to the small quantity of the leaves available indicate only the presence of an astringent principle and a coloring matter which do not afford a definite proof of the presence of any alkaloid or glucoside, although the leaves appear to contain some substance as yet unknown to chemists.

Vermont Medical Monthly.

A Journal of Review, Reform and Progress in the Medical Sciences.

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EDITORIAL.

There is perhaps no class of pathological conditions which are of such vital interest to the American physician as the varied lesions of the kidney commonly grouped under the name of Bright's disease and we are particularly glad to be able to publish this month a symposium on this subject. One form of nephritis, the chronic interstitial type, is preeminently the American disease. This disease which is usually but a local manifestation of the general condition of arterio-sclerosis is so common as to be the rule rather than the exception among men over fifty years of age. So accustomed are we to expect this condition that we are apt to look at it as a result of the natural process of growing old. It is not this, or at least if it is a normal condition of age it is too often prematurely present. It is easy to theorize

about the cause of the prevalence of this disease in this country but exceedingly difficult to prove the truth of our theories with anything like scientific accuracy. There is little doubt, however, that general arterio-sclerosis with contracted kidney is most often the result of long continued faulty metabolism with chronic ptomain poisoning of mild type and this in turn is commonly caused by faulty habits on the part of the individual. Excesses are the cause of more cases of chronic interstitial nephritis than anything else—and by excess we mean excess in work and care as well as eating and drinking. The business man of our modern cities, working under tremendous pressure, taking scant time to eat his meals and none to digest them, is as often the victim as the wealthy, high-living, wine-bibbing trifler. The hard-working, much exposed farmer is as often afflicted as the debauchee.

It is this form of nephritis which can be most surely detected by analysis of the urine. The large quantity of urine with low specific gravity, low percentage and total amount of solids accompanied by the presence of traces of albumen and few small hyaline casts, when constantly present is a picture too typical to be mistaken. Unfortunately the detection of the disease is of less avail than in any other form of nephritis. The organic change has started and nothing can be done to remedy the damage already done and little to prevent its progress. The ideal prophylactic measure—the simple life—is the one which is little likely of being accomplished even by those who are perfectly familiar with its necessity to their welfare.

In connection with an editorial published in this Journal of last issue the following clipped from the Denver Post of Denver, Colorado, June 14, 1907, is of interest:

SAYS POISON IS BEING SOLD AS MEDICINE.

INFORMATION FILED AGAINST PHYSICIAN WHO
ADMINISTERS VIABI TREATMENT.

An information has been filed in the West Side court against Dr. E. J. Reinhardt charging her with violation of the statutes in the administering of the Viabi treatment. The district attorney has had the drugs used in the course of the Viabi treatment chemically analyzed and the analyst has reported to him that they are chiefly opiates. Dr. Reinhardt will be charged with selling and dispensing medicines containing poisonous vegetable alkaloids under the guise of harmless preparations. These remedies, declares Mr. Stidger, are making opium fiends of scores of people. Mrs. Adeline Neibergall is the complaining witness. Some weeks ago Mrs. Neibergall, who lives at Montclair, heard of the treatment at a meeting held in a church where an exponent of the merits of the course succeeded in interesting her. A few days ago she consulted her regular physician, Dr. Stephen J. Parsons, who told her she had been taking morphine. She indignantly denied the accusation and finally convinced the physician that anything of that nature which she might have taken had been by means of the new treatment and had not been taken purposely.

Dr. Parsons referred her to Dr. S. D. Van Meter, secretary of the State Board of Medical Examiners. Dr. Van Meter referred her to the district attorney with the suggestion that she file a formal complaint with him.

Mr. Stidger turned over the medicine given Mrs. Neibergall to Dr. W. H. Sharpley, health commissioner, who had it analyzed by Dr. Sewall, the city chemist. Dr. Sewall held that the liquid used in the treatment contains 85 per cent. morphine and 15 per cent. glycerine, and this same analysis was made by Dr. Parsons.

The statutes provide that where poisonous vegetable alkaloids are used in the preparation of prescriptions a label shall be affixed with the proper caution printed thereon. He also says the formula which is advertised with the Viabi is not a correct description of the ingredients.

The remedies used by the Viabi exponents are prepared in California, but an agency exists in almost every state in the Union, and hundreds of thousands of women are devotees of it. Dr. Reinhardt is the wife of O. A. Reinhardt, in whose name the Colorado agency is

operated, and Mrs. J. M. Potter is one of its agents here. The offices are in the Mack block.

The National Meat Inspection law has provided for the inspection of meat which passes between states, but does not provide for inspecting animals which are killed on farms and in small slaughter-houses and marketed in nearby cities and towns of the same state. Under the title "Some Smaller Jungles," a recent issue of *Collier's* deals with this subject, with special reference to Massachusetts. We of Vermont surely have some interest in the local inspection of meat. Our recent epidemics of trichinosis, the amount of tuberculosis within our borders, and our cattle commission investigations show the need of some precautions in this respect. No doubt nearly every town has its shed, barn or outhouse of some kind, known to the local authorities, where animals are slaughtered and dressed under various degrees of cleanliness. Some are known to be transgressors of the law. The last legislature provided a penalty for the sale or intent to sell of diseased meat or "bob" veal, but failed to specify who should make the charges, or provide for adequate inspection. We need a state meat-inspection law, with a sufficient number of conscientious inspectors to insure something more than a legal farce. Lacking this, it appears that the local health officers are the ones to whom we must look to protect us from our own neighbors.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. J. W. Jackson has resigned as health officer of Barre.

Dr. H. A. Crandall of Burlington, who has been seriously ill, is now much improved in health.

Dr. B. J. A. Bombard and Miss Anna Lucille Courcy, both of Burlington, were married April 10.

Dr. J. A. Archambault of Essex Junction has been at the Mary Fletcher Hospital for treatment for middle ear disease.

A class of sixteen young men took the examination before the State Board of Pharmacy at its April meeting in Montpelier.

The Rutland City Hospital has received \$1,000 from Miss Mary E. Cramton. It is available for the building of a nurses' home and swells that fund to nearly \$2,500.

Dr. Raymond S. Elmer of Bellows Falls, the new president of the Windham County Fish and Game Protective Association, is an enthusiastic fisherman, and although only 27 years old is accounted a good man for the office. He is a son of James P. Elmer of Brattleboro.

The contract for erecting the main building of the Vermont Sanatorium at Pittsford has been awarded to G. H. Cutting & Co. of Worcester, Mass. It calls for the completion of the structure by October 1 and of the two wings by November 1. The firm built the Proctor Hospital.

Dr. P. E. McSweeney has begun a three months' term at surgeon at the Fanny Allen Hospital at Burlington, and Dr. R. W. Johnson began a three months' term as physician. Dr. H. C. Tinkham and Dr. H. R. Watkins have begun their service as surgeon and physician at the Mary Fletcher Hospital.

Dr. William W. Genge, aged 39, died at St. Johnsbury, April 10, after a short illness of pneumonia with other complications. He was born in Canada and in the spring of 1891 located in Hyde Park, where he practised for 14 years, removing to St. Johnsbury about three years ago.

Dr. W. Scott Nay of Underhill, secretary of the State Board of Medical Examiners, has announced the result of the examination in January. Eleven men took the examination, of whom two dropped out after the first day's tests, two failed to pass and seven received certificates. The successful ones were Dr. S. H. McKewen, Felchville; Dr. W. E. Avery, Warren; Dr. G. C. Rublee, Wolcott; Dr. G. S. Clark, Richford; Dr. James F. West, Troy,

N. Y.; Dr. C. A. Smith, Athens, Me.; Dr. Patrick F. Strapp, Winooski.

Dr. Harland S. Boardman, a well-known physician of Montpelier, died March 21 of organic disease of the heart after an illness of several years. Dr. Boardman was born in Middlebury, October 26, 1850. He was educated in the common schools at Middlebury and graduated from Middlebury College in 1874. In 1877 he graduated from the Cleveland Homeopathic Hospital College at Cleveland, Ohio. He began his practice in Cambridge, Vt., in 1878, going from there to Woodstock, then to Ludlow, and in April, 1885, he located in Montpelier. In 1900 he graduated from the New York electro-therapeutic clinic and laboratory and from that time until he was incapacitated for labor he had a large practice of patients who were treated by electricity.

Dr. A. P. Grinnell, formerly dean of the Medical Department of the University of Vermont, died at his home in New York City, April 6, of complications following a long and severe attack of the grip. Dr. Grinnell was born in Massena, N. Y., December 26, 1844. He attended the academy at Potsdam and Lawrenceville, in the same county, and graduated from the Bellevue Hospital Medical College in 1869. He practised at Ogdensburg, N. Y., for a short after leaving college, and in 1870 came to Burlington, where for more than 30 years he was a conspicuous and influential figure in the ranks of his profession and in the social and political life of the city. He rapidly acquired a large practice; was dean of the medical faculty of the University of Vermont from 1874 to 1877 and from 1880 to 1898; was distinguished for his ability as a lecturer and for his executive capacity as a member of the medical faculty. Dr. Grinnell was for his first three years at the medical college professor of physiology, and for seventeen years following, professor of theory and practice. He was attending and consulting physician at the Mary Fletcher Hospital from its foundation, and for two years, 1885-86, he held the chair of practice at Long Island College, Brooklyn, N. Y. During President Cleveland's tenure of office, Dr. Grinnell was a pension examiner and president of the local board. Locally, he held at different times offices of responsibility, such as health officer, city physi-

cian and school commissioner. He moved to New York about two years ago. The funeral was held at St. Paul's Episcopal Church at Burlington, April 9.

NEW HAMPSHIRE.

The Legislature of New Hampshire has passed an appropriation of \$150,000 for a state hospital.

The Dartmouth Medical School held its graduation exercises March 29, in the auditorium of Dartmouth Hall. Eleven men received diplomas. The following is a list of the graduates: Henry Gerald Carroll, Peabody, Mass.; Arthur Henry Ellis, North Billerica, Mass.; Ernest Leslie Huse, Newton Junction, N. H.; Thomas Littlewood, Boston, Mass.; Arnen Steven Mangurian, A. B., Hadjin, Turkey; Patrick John Manning, Hyde Park, Mass.; Willis Grafton Nealley, South Berwick, Me.; Daniel Capron Norton, B. S. New Britain, Ct.; Olney Draper Phelps, A. B., Warren, Mass.; Charles Warner Robertson, Ph. G., Bridgeport, Ct.; Howard Edward Thompson, Bethlehem, N. H.

The following appointments on the staff of the Littleton Hospital was announced. For superintendent, Miss Nellie E. Farr, who is in Boston taking a special course. The medical and surgical staff are to serve for a period of two months. Those appointed to serve first are Drs. McGregor and Downing, and next in order are Drs. Sneden and Nobles, and lastly Drs. Beattie, John M. Page and Mathieu. On the consulting staff are Drs. Mitchell and Leith of Lancaster, Crossman of Lisbon, Wiggin of Whitefield, Stillings of Concord, Gile of Hanover, McGahan of Bethlehem, J. Blake White of Bretton Woods. The appointments on the visiting staff are Drs. Hildreth and Pratt of Bethlehem, Johnson of Franconia, Allen and Hartshorn of St. Johnsbury, Vt., O'Brien of Groveton, Boynton and Cleasby of Lisbon, French and Johnson of West Concord, Vt., and Warden of Bath.

MAINE.

Dr. D. F. Davis Russell and Miss Alice B. Lindsay of Leeds were married February 27.

Dr. J. Frank Trull of Biddeford was painfully injured recently by being thrown from his sleigh.

Dr. Charles R. Brown, who died at Lynn, Mass., was buried March 26, at South Windham, his native town.

Dr. Charles O. Files of Portland, was arrested April 1 on a complaint, drawn by County Attorney Connelly, charging him with performing a criminal operation upon a 17-year-old girl who died in this city Saturday morning. He was at once liberated upon furnishing \$5,000 bonds to a bail commissioner. Dr. Files is a well-known physician, and is regarded as an authority on matters relating to electrical therapeutics.

Of those who early in March took examinations before the Maine State Board of Medical Registration, the following passed: Hollis G. Bachelder, William M. Anderson, Charles H. Keene, Boston; H. P. Bennett, Lynn; E. D. Whitehead, Brighton, Mass.; S. J. Beach, Wayland, Mass.; G. A. Schneider, Island Falls; John E. Runnels, Rutland, Mass.; E. J. Markens, Newark, N. J.; Arthur E. Darling, Auburn, N. Y.; W. R. Kramer, Wheeling, W. Va.

NEW YORK.

Dr. F. F. Finney will leave Burke about May 1 to take a post-graduate course of one year in New York City.

The Medical Society of the County of St. Lawrence held its semi-annual meeting at Gouverneur, April 2. The program was devoted entirely to tuberculosis.

At a recent meeting of the Gouverneur town board a scale of prices was offered the physicians of the village for their services for the poor of the village. The board offered 50c a visit, 10c a mile and \$5 for confinements. The physicians have drawn up a paper stating that they will not make any visits for less than \$1 a visit, 25 cents a mile and \$10 for confinements. This rate is the same given any of the physician's patients. The board has taken no further action, but it is expected that they will come to terms.

MASSACHUSETTS.

The Western Massachusetts Alumni Association of the Medical School of the University of Vermont held its third annual banquet at Springfield, March 22. The guest of honor and chief speaker was Dr. Henry C. Tinkham,

dean of the Medical School. In his remarks Dr. Tinkham gave the alumni an idea of the recent growth of the school and the need at the present time of the support of the alumni in directing medical students toward Vermont. The officers elected in the business meeting following the banquet were: President, Dr. C. J. Downey of Springfield; vice-president, Dr. J. M. Fay of Northampton; secretary and treasurer, Dr. M. J. Stoddard of Springfield. Dr. Downey was toastmaster of the evening and called upon the past and newly elected officers of the association, and several of the members. Others present were as follows: Dr. Marshall Calkins of Springfield, Dr. M. H. Lynch of Chicopee Falls, Dr. C. H. Dean of Northampton, Dr. C. H. Prindle of Chicopee, Dr. Sheldon S. S. Campbell and Dr. Paul Plummer of Collinsville, Conn., Dr. F. C. Bruce of Easthampton, Dr. M. Holden of Southampton, Dr. E. W. Jackson of Monson, Dr. Sedgwick and Dr. L. B. Howe of Wales, Dr. G. L. Dana of Northampton, Dr. I. R. Calkins, Dr. P. J. Irwin, Dr. W. A. Smith of Springfield, Dr. E. D. Hutchinson of Westfield and Dr. H. S. Stowe of Hartford.

PROSPERITY AND THE DOCTOR.

The wave of prosperity has reached every portion of our country. There is not a trade or profession that has not profited more or less by it. The farmer is receiving more for his produce; wages are higher for the laborer; the skilled mechanic commands greater returns than ever before; ministers' salaries are being increased; the attorney is demanding larger fees; there is work for every man who wants it. Never has it been so easy to earn a dollar as now. People who earn money easily, spend it with a freer hand than when money is scarce and times are hard.

The medical profession, too, have felt this prosperity. It is easier now to collect bills, and accounts are not allowed to stand so long upon the books. But, we are convinced that doctors have not been alert enough to grasp their opportunity to its fullest extent, nor to derive the complete advantages which are legitimately their meed.

Although medicine, food, clothing, provender for horses, harness, vehicles, and all general accessories to a busy medical practise (except medical journals) are higher than ever before, we have not noted any general tendency to an

increase of fees. Nearly all physicians are making just the same charges that they did when "times were hard." It is admitted that they are collecting their fees easier, but *collecting* should not be part of the physician's labor. When he has given his patient due attention, he has then *earned* his fee; and it is an outrage that he should be compelled to *earn it again* while collecting it. By every rule of right and justice, the physician should command higher fees during these prosperous times than when the times were stringent.

It is the purchasing power of money which forms its true gauge. A dollar is the same now that it has always been, but that dollar can be obtained with less exertion than formerly, while its purchasing power is less. People *expect* to pay more dollars for the same thing than they expected to pay when dollars were scarcer. They *expect* the physician to charge more than formerly; but if he does not, they are gratified. Then, why not demand a share of the general prosperity? If you are waiting until the prosperous farmer, the wealthy merchant, or the well-paid mechanic suggests to you that it would be sensible to raise your fees, you will never raise them. When you do attach a reasonable percentage of increase, they will pretend to be astonished; but in reality, they will secretly wonder why you had not done so earlier.

It is all in a man's own hands. If a patient wants you, he will not quibble at the fee. If you are charging \$2 for a trip to the country of a certain distance, and your neighbor makes a trip of the same distance for \$1.50, you will still be called, just the same. When a patient calls you, he is not thinking of fees; his call is made because he believes you can do more to aid him than any other physician within reach, and he will gladly pay you more than he would be satisfied to pay any other practitioner. When you can do it, why don't you? It would be no injustice; it would work no hardship; it will not be *seriously* complained of by those who propose continuing to employ you, if you raise your fees in proportion to the increased cost of other expenses of life. Do it, then, and do it now.

Don't be exorbitant; don't be unreasonable; but simply add to your fees a fair percentage, say 25 per cent., which will cover the increased cost of attention to a patient. Then, in case of quibble, you can explain, and tell them it is either that fee or inferior methods of treatment,

and that you have always considered that the best was none too good for your patients or yourself.—*Medical World*.

NEW YORK CITY'S MILK SUPPLY is now clean, declares Commissioner Darlington, and this is an achievement second only in importance to securing a supply of pure drinking water. Dr. Darlington has found that the trouble was not so much with the city venders as with the country milkmen. Contamination and adulteration are both carried on more largely up the State than here in New York. When he began his investigations there were only two inspectors for all the dairies and creameries. A law was then discovered which permitted the Health Department to revoke permits unless inspections were allowed, with the result that the Department's inspectors are now closely scrutinizing the source of the milk supply in New York, New Jersey, Connecticut and Massachusetts. In this State alone fifteen inspectors are now employed, five hundred barns are examined every week and the milk is examined in transit. The result is that hundreds of dairies have been closed, some of them permanently. The fines exacted jumped in one year from \$1,500 to \$16,000. Since then they have fallen practically to nothing, although the watchfulness of the inspectors has been increased; it is thus evident that the city's milk supply has been bettered. The commissioner declares our milk supply to be "better and purer than that of any other city in the world."

AN OINTMENT FOR BOILS is recommended by Bulkley: \mathcal{R} Carbolic acid, gr. 5-10; fl. ext. ergot, \mathfrak{ss} ; starch \mathfrak{ij} ; zinc oxide, \mathfrak{ij} ; ungt. rosae, \mathfrak{ij} . This is spread upon the center of a moderately thick layer of absorbent cotton, several times the size of the inflamed area, and secured with strips of adhesive plaster. The dressing can be left on for ten to twelve hours.—*International Journal of Surgery*.

SURGERY AS A VAUDEVILLE SHOW.—Medical men are sometimes so carried away by their enthusiasm that they make presentations at times which are—well rather unfortunately chosen. On one occasion, not purely medical, where many ladies not professionally interested were present, a physician related with enthusiasm a case in which the intestine was removed per vaginum to a length which he estimated to be nearly that of the meeting-room

in which he spoke. Another physician, during an exceedingly interesting popular lecture, reproduced a famous Rembrandt (those old masters among the Dutch were nothing if they were not realistic) depicting a birth in which the cord and placenta are so vividly portrayed as to leave nothing whatever to the imagination. These were among our best men, actuated by the most wholesome motives. The *Journal A. M. A.*, however, relates the experience of Torkel, of Breslau, who saw, in a kinetoscope show at Freiberg, a representation of several major operations as performed by a well-known surgeon; these were a resection of the knee, puncture of the brain after wide opening of the skull and a vaginal total hysterectomy "done on a naked woman" as the barker at the door proclaimed, naming the surgeon. The vaginal operation was accompanied by extensive hemorrhage, and several persons left the theatre in horror. Such presentations are of no use in medical teaching because of the rapidity of their movements; and such public exhibitions are not only demoralizing to the young, but give a completely distorted picture of the surgeon's work, representing it as a barbarous rushing through of the task. Torkel rightly urged the authorities to interfere and to forbid such pictures. He does not condemn the surgeon by name, but it will be recalled that Doyen of Paris has presented before scientific societies moving pictures of some of his operations, and that he recently brought suit against the photographers for reproducing the views without his permission, obtaining damages and an injunction against their further use in France.—*Medical Times*.

BOOK REVIEWS.

THE PROPHYLAXIS AND TREATMENT OF INTERNAL DISEASES. Designed for the use of practitioners and advanced students of medicine by FORCHEIMER, M. D., PROFESSOR of Theory and Practice of Medicine and Clinical Medicine, Medical College of Ohio. D. Appleton & Co., 1906, New York and London.

This book deals only with the prophylaxis and treatment without consideration of pathology and diagnosis. The knowledge of disease, etiology, pathology, diagnosis and treatment, has been so much increased in the last two decades that no one volume can treat all the subjects in a thorough manner. Most works are disappointingly deficient in treatment. We have no doubt that this book will be welcome

as meeting this long felt deficiency. The author has given the treatment which he has found most successful first but has also outlined other useful methods of treatment. He has attempted to adjust his treatment to the needs of the man in private practice.

A MANUAL OF PATHOLOGY. By Guthrie McConnell, M. D., Pathologist to the St. Louis Skin and Cancer Hospital and to St. Luke's Hospital, St. Louis, Missouri. 12mo of 523 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1906. Flexible leather, \$2.50 net.

These handbooks always find a welcome. While they make no pretense of filling the place of the more complete works they are extremely convenient and usually contain in a nut shell just the information one desires. The book is well arranged and up to date.

HUMAN SEXUALITY. A Medico-Literary Treatise on the Laws, Anomalies and Relations of Sex with special reference to Contrary Sexual Desire by J. Richardson Parke, Sc. B., P. H. G., M. D., Late acting assistant surgeon U. S. Army. Professional Publishing Company, Philadelphia.

The publishers' claim that this book contains a wealth of scholarship, literary as well as medical, is well borne out by the text. The writer has certainly given to the profession the results of a tremendous amount of study and observation upon this subject with most complete references. It is unfortunate that the treatment is in so light and irreverent a vein. A too great tendency to be facetious detracts from the dignity of the discussion. The book is undoubtedly very readably written but whether any purpose in comparison with the task of writing and printing it are served by it we greatly doubt. Its circulation should be confined exclusively to the profession.

A MANUAL OF NORMAL HISTOLOGY AND ORGANOGRAPHY. By Charles Hill, Ph. D., M. D., Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. 12mo volume of 463 pages, with 312 illustrations. Philadelphia and London: W. B. Saunders Company, 1906. Flexible leather, \$2.00 net.

A convenient, concise, well arranged and illustrated manual put up in very attractive and convenient shape. This little book will, we are sure, be a popular one for student and practitioner alike.

A CITY OF CONSUMPTIVES.—In accepting the \$1,000,000 tender of the Santa Fe Railroad and the 10,000 acres of land given by the

City of Las Vegas, N. M., the National Fraternal Sanatorium for Consumptives, acting in the interest of 8,000,000 members of fraternal organizations in the United States have put their new community—Fraternal City—on the map of New Mexico—six miles west of Las Vegas. It is to be a sanatorium for consumptives, maintained by per capita contributions of members of the big fraternal and religious orders. The gift of the Santa Fe Railroad consists of the \$500,000 Montezuma Hotel building in the Rio Gallinas Canon, including several structures in the vicinity, several hot springs, and 1,000 acres of land, representing a value of \$1,000,000. This, with the 10,000 acres given by the City of Las Vegas, will be the basis upon which the sanatorium will be started. By next fall it is expected the place will be formally dedicated and opened. Plans are being made for the reception of 5,000 patients, this number to be increased indefinitely as rapidly as funds are available. It will require an expenditure of \$75,000 to put the place in shape for the reception of patients, a part of which has been contributed in small amounts. The government of the sanatorium will be vested in a board of managers composed of 15 representatives of fraternal and religious orders. It will be governed on the basis of common ownership, with profits to none. Most of the patients will come from the fraternal orders, but others will be admitted by the payment of a small fee. Those who desire to work will have a chance at stock farming or at any of the numerous positions incidental to the operation of the sanatorium.

PURIFICATION OF SEWAGE.—A valuable contribution to the literature on the disposal and purification of sewage has just been issued by the United States Geological Survey as Water-Supply and Irrigation Paper No. 185. Investigations on the purification of Boston sewage with a history of the sewage-disposal problem, by C. E. A. Winslow and E. B. Phelps. The volume of sewage discharged by modern communities is so large and the character of all kinds of sewage is always so objectionable that the so-called sewage disposal problem becomes, from the economic as well as the sanitary point of view, one of the most serious with which American cities have to deal. It is of vital importance to every community to secure such a disposal of obnoxious sewage as will avoid the creation of

any insanitary focus or foci in the environment, or any infringement of the laws of hygiene and sanitation.

The investigations described in this publication were made at the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology under the direction of Prof. William T. Sedgwick. The station at which the work was carried on is situated on the line of the main trunk sewer of the south Metropolitan district of Boston at a point where it contains the sewage of about half a million people. At this station pumps were installed and tanks were constructed for tests of the various methods of sewage purification. The results of this work and the practical conclusions that have been drawn are given in Water Supply Paper No. 185, which may be obtained on application to the Director of the United States Geological Survey, Washington, D. C. These results are by no means applicable merely to large cities, but contain lessons of practical value to all communities having to deal with the ever present sewage disposal problem. The description of the experiments is preceded by a careful and elaborate historical review of the whole sewage disposal problem from its origin in the wide adoption of the water-carriage system up to the present time, when that system has become practically universal. This interesting review cannot fail to be of the highest value to expert engineers, sewage commissioners, and cities all over the United States, especially to those numerous small communities that are confronted, perhaps for the first time, with a problem that means so much for the health as well as the finances of the citizens.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

OBSTETRICS.

ECTOPIC PREGNANCY.

GEORGE B. SOMERS (*California State Journal of Medicine*, March, 1907), summarizes the Diagnosis and Treatment of Ectopic Pregnancy as follows: As almost all cases of ectopic pregnancy terminate within the first six or eight weeks, either rupturing the tube or aborting into the pelvic cavity, it is convenient to divide the symptoms severally into those that occur before, at and after rupture or abortion. Those cases that go on for five or six months, or even to full term, fall more properly into the domain of obstetrics, because here we have a large viable fetus to deal with.

Symptoms.—In the earliest stages of tubal pregnancy, before rupture, it is imperative to make an accurate diagnosis, because it is during the first few weeks that it is fraught with the greatest danger. In a typical uncomplicated case, the symptoms are quite clear and the diagnosis is comparatively easy. In fact the history alone, without any physical signs, is sufficient to reveal the condition. The group of symptoms occurring before rupture, are:

(1) Amenorrhoea; (2) Signs of pregnancy; (3) Pelvic pain or discomfort; (4) Irregular hemorrhages; (5) Shedding of decidua tissue.

If in addition to these symptoms the pelvic examination shows a distinct boggy mass behind or lateral to the uterus, the diagnosis is complete.

When rupture occurs, we have evidences of internal hemorrhage and shock shown by sudden severe pain, fainting, extreme pallor, cold sweats and thready pulse. If the case is to terminate fatally the symptoms rapidly progress to the end. In other cases the symptoms of hemorrhage may be repeated several times in the course of a few days or weeks. It should be understood that the seriousness of the symptoms at the time of rupture vary according to the situation of the embryo in the tube. The nearer to the uterus, the longer will be the gestation and the greater the hemorrhage when rupture occurs. Where the impregnated ovum remains near the fimbriated extremity, it usually aborts early, producing comparatively small hemorrhage and mild symptoms. Such pregnancies undoubtedly often terminate spontaneously in complete recoveries, and perhaps are not even diagnosed.

Again, if the rupture of the tube happens to take place into the broad ligament, instead of into the pelvic cavity, the symptoms would be considerably modified. The symptoms present at any time after rupture vary considerably. The blood is rapidly absorbed and in the course of time all the evidence that we may have that the condition has been present is the past history and the presence of a small, tender mass in the pelvic cavity.

Diagnosis.—With a clear history and no complications, the diagnosis of ectopic pregnancy is easy, but as a matter of fact the diagnosis is overlooked quite as often as it is made. Often, when the condition is revealed by the operation, we find that a careful review of the history points distinctly to the correct diagnosis.

The most characteristic symptoms before rupture are the occurrence of amenorrhoea, followed by irregular bleeding and the passing of decidua shreds.

The most characteristic symptom at the time of rupture is the suddenness and severity of the pain. A celebrated example is the death of Adelaide Neilson. While walking across the floor of a cafe in Paris, where she was dining, she suddenly dropped to the floor and expired an hour or so later. The post-mortem revealed an ectopic pregnancy.

Many ectopic cases occur in women who have been sterile for a number of years. In the cases of which I have record, three occurred in primipara. One of these, seven years after marriage. After previous pregnancy, one occurred eight months, one three years, one five years, two six years, one fourteen years and one seventeen years. The long interval since the previous pregnancy is often misleading, but should really answer as corroborative evidence. The complications which are likely to obscure the diagnosis and which are often the causes of the condition are abortion, salpingitis, appendicitis, uterine and ovarian tumors.

Treatment.—Every once in a while the question is raised as to the choice between vaginal section and

abdominal section in operating on these cases. If the diagnosis is made, to my mind, the only safe procedure is to open the abdomen. A vaginal section might be used as an exploratory measure, but only under circumstances where one is prepared to perform a laparotomy if necessary. Where there is hemorrhage, it is sometimes hard enough to check it even with the abdomen open. With a vaginal section, the difficulties of the operation are vastly increased in all directions.

When a diagnosis is made, an operation should be performed as soon as possible thereafter. Even if the hemorrhage has ceased, there is need of reasonable haste, for the bleeding may start up again at any time with even greater severity. As regards technic, the procedure depends largely upon the conditions found. If the amount of blood in the pelvic cavity is small, it is easily removed, together with the ruptured tube. Usually both ovaries and the uterus are covered with large amounts of exudate and adherent clotted blood, appearing to be in bad condition, but careful examination and careful wiping will show the trouble to be external rather than intrinsic. One may therefore safely be conservative with regard to all else than the affected tube unless the other parts are distinctly diseased.

If the patient is in bad condition, and the abdomen filled with blood, the first procedure is to stop the hemorrhage. The question now arises as to what shall be done with the blood. According to Futh the operative procedures are of three kinds. One group of surgeons believes that all the blood should be left in the abdomen to be absorbed thus lessening the anaemia which is one of the most serious symptoms of the condition. Another group removes all the blood carefully by washing and sponging the organs lest the blood clots become infected. The majority of operators, however, hold the middle course, removing the larger portion of the blood, but allowing what can not be easily reached to remain, so as not to prolong the shock of the operation.

It may be said in passing that in profuse hemorrhage into the abdominal cavity, it is almost impossible to remove all the blood, for it finds its way up under the liver and even through the foramen of Winslow into the lesser peritoneal sac. Some blood remaining does no harm, and the removal of the easily reached blood is, in my opinion, all that is necessary, but on account of the anaemia and shock, it is quite an important measure to fill the abdomen with normal salt solution as substitute for the lost blood. This salt water is quickly absorbed and is of great service in overcoming shock.

In conclusion, the points concerning ectopic pregnancy that seem to me important are:

- (1) The condition is more common than is realized.
- (2) It is often overlooked.
- (3) The symptoms are often obscure.
- (4) In diagnosis the history is much more important than the physical examination.
- (5) Granting the difficulty of diagnosis and the serious nature of the disease, the possibility of its presence should be borne in mind whenever a case of pelvic disease is under examination.

MEDICINE.

HERPES SIMPLEX.

J. F. SCHAMBERG (*Journal A. M. A.*, March 2), holds that herpes simplex and herpes zoster, while not clinically identical, are closely related; the histology

of the cutaneous lesions and the observed nerve changes are practically the same in both. Both are due to a variety of causes, but he thinks that the vast majority of all cases are due to the action of a toxin, and this, of course, presupposes an infectious origin. The frequency of herpes simplex in certain diseases and its rarity in others suggest strongly that the toxin must have peculiar qualities to exercise such a selective affinity for sensory nerve structures. He holds, however, that this toxin can not be the result of the action of any specific organism in the case of herpes simplex, and by analogy not in zoster. The three diseases in which herpes occurs most frequently and in which it is therefore of diagnostic importance, are pneumonia, spotted fever and malaria. Schamberg does not commit himself as to its favorable prognostic significance in pneumonia, of which there is considerable evidence, but he does not credit it in spotted fever nor in malaria in this country. The liability of some persons to recurring attacks of herpes must be taken into account in estimating the diagnostic importance of its occurrence.

FUNCTIONAL ALBUMINURIA.

W. COLLIER (*British Medical Journal*, Jan., 1907), gives the results of some interesting investigations made by himself on Functional Albuminuria in Athletics. The members of various college crews who were training for the Torpids were subjected to the examination. Specimens were taken an hour to an hour and a half after rowing. In some cases the urine of every member of the crew contained albumen, and sometimes the urine of two or three, or even four, members would contain very heavy clouds of albumen; especially was this true of the head boats on the river. The better the crew, it seemed, the more cases of albuminuria, the probable explanation being the harder the work the heavier percentage of albumen.

We examined 156 men in training for the Torpids.

With the cold nitric acid test:

- 49 showed no trace,
- 24 slight ring,
- 54 definite ring,
- 27 very thick ring.

That is, with this test 81 specimens out of 156 contained a very definite amount of albumen.

With the heat and acetic acid:

- 26 showed no trace,
- 41 a faint trace,
- 58 a definite cloud,
- 31 a thick cloud;

89 out of 156 showed a very definite amount of albumen—57 per cent.

It must be remembered that in the case of many of these crews only a moderate amount of work had been done. On four or five occasions, when specimens were sent us by crews who had been rowing the course at racing pace, the number of those passing very definite amounts of albumen was strikingly increased.

Later on we examined the urines of the crews competing in the Inter-University Boat Race. From the Oxford crew specimens were obtained from the eight members of the crew one hour after rowing the full course from Putney to Mortlake, and in every instance albumen was present, in 50 per cent. in large quantities. We were only able to obtain specimens from three members of the Cambridge crew, but in each instance albumen was present.

I next attempted to get specimens from those who were to take part in the Inter-University Athletic

Sports, but was far less successful. I was only able to examine about a dozen specimens; in not a single instance did I fail to find albumen after racing, and generally in considerable quantities.

Again we may learn something from the University crew. Here we have a picked body of men who have to pass a careful medical examination before their training commences, and yet we find that every member of the crew without exception passes albumen after a hard row, and at least half the crew a very considerable amount. Some years ago the late Dr. Morgan, of Manchester, made a thoroughly exhaustive inquiry into the afterhealth of men who had taken part in the Inter-University Boat Race since its commencement. His inquiry included some 294 competitors, and one of the conclusions arrived at was that the chances of long life in their case was distinctly greater than that of the average man. We have no reason to believe that University crews were any freer from athletic albuminuria in the past than in the present day.

In conclusion I wish to raise two points:

Ought one any longer to advise young men who pass large quantities of albumen after severe muscular exercise to give up all hard athletic competitions? I think not. These investigations would seem to prove that if so, we must discourage severe athletic competitions altogether. Of this year's Oxford University crew every member after rowing a trial over the full course passed a definite amount of albumen, and at least half the crew passed a very considerable quantity. With the College crews the same thing happened. In the New College boat, head of the river in the Torpids, after rowing a course every member's urine contained some, while in five of the crew the amount was large. The running men seemed to pass even more than the rowing men. In short, it would appear that just as we may expect to get evidence of hypertrophy of the left ventricle of the heart and emphysema of the lungs in the man who habitually indulges in violent athletic contests, so we may expect to find a definite amount of albumen in his urine for a few hours after taking part in these exercises.

Finally, ought the assurance companies to continue to refuse to consider the acceptance of the lives of young men between the ages of say 18 and 30, whose urines are found to contain albumen after exercise when it can be shown that no albumen is present after rest or after a meal? I think not. I have known instances of men who have been absolutely refused because they happened to be examined in the afternoon after exercise, when they would certainly have been accepted had they been examined in the earlier part of the day. To me this seems a very unsatisfactory state of affairs.

I have already apologized for the incompleteness of my observations, but I am anxious to take an early opportunity to draw attention to a subject which seems to me one of great interest and which calls for a considerable amount of further investigation.

UNUSUAL OCULAR MANIFESTATIONS OF ARTERIOSCLEROSIS.

The two conditions here noticed by ZENTMAYER (*Journal A. M. A.*, March 2), are optic atrophy and spasm of the central artery of the retina. The literature and theories of optic atrophy from arteriosclerosis are reviewed and a case reported which seems to him to substantiate the view that with sclerosis of the ophthalmic or internal carotid artery pressing the nerve upward against the unyielding edge of the internal end of the fibrous canal, a trans-

verse pressure atrophy, finally involving the entire diameter of the nerve, may occur. Such a process, he shows, would account for the symptoms and appearances in the case reported. The literature of spasmodic blindness is also reviewed and a case reported in abstract in which the spasm of the ocular vessels was repeatedly observed ophthalmoscopically. It is probably unique in this respect, as only three similar cases, but of a single observation of the spasm, were discovered in a search through the literature; those of Wagenmann, Benson and Sachs, all of which are reproduced in abstract. The patient had arteriosclerosis and probable incipient tabes. The prognosis in these cases varies according to whether the spasm is simply a manifestation of a general spasmodic disorder or of a general grave vascular disturbance. The treatment is that of early arteriosclerosis, high tension and spasm. Iodid of potassium is the only reliable drug for the arteriosclerosis. Moderation in all things is of more importance than regularity of dosing. The nitrites are available for the spasm, and heart tonics are usually needed. With symptoms of obstruction, massage of the eyeball should be tried. The value of iridectomy is questioned. It may be justified in certain cases, but its efficiency against future attacks is dubious.

BACTERIAL INFECTIONS OF THE DIGESTIVE TRACT.

In this elaborate abstract of his Harvey Society lecture, C. A. HERTER, New York City (*Journal A. M. A.*, March 23), describes the bacterial flora of the human digestive tract and its effects on the organism. He does not find anything conclusive in the experimental studies as to the necessity of bacterial action in the digestive tract for the maintenance of health in the higher mammals. The obligate bacteria of the intestines are not ordinarily harmful to man and their value to him is probably in checking the development of the more injurious ones. Herter discusses the effect of aerobic and anaerobic condition and shows that the larger number of anaerobic organisms are found in the large intestine, where there is most pronounced evidence of intestinal putrefactive action. The conditions are not the same at all ages. In infancy there are fewer bacterial species and these vary somewhat in bottle-fed and breast-fed infants. During childhood and adolescence there is a gradual change, and in later adult life the number of putrefactive anaerobes is increased and, while the general health may not appear to suffer markedly, there is more or less intoxication from putrefactive processes which aid in bringing on senility. The differences of individual susceptibility and the effects of various putrefactive products are discussed. Some of these, such as ammonia, putrescin and cadaverin, are produced in such small quantities as hardly to be of much importance. Others, such as the sulphur compounds, phenol, cresol, skatol, and indol, are of more importance and may produce observable toxic effects. The individual cellular reaction of the patient is probably more responsible than the poison for the differences and effects sometimes observed in individuals, as in the idiosyncracies observed in different patients in certain kinds of foods. Herter suggests the recognition of three types of chronic excessive intestinal putrefaction, viz., the indolic type, marked by striking indicanuria; the saccharobutyric type, due apparently to the anaerobic forms; and the combined type of the two former. In the latter there is more rapid advance of invalidism than in either of the other two. There are earlier and more prominent nervous symptoms, mental depression, and irritability, and

quick fatigue, sometimes ending in a picture of pernicious anemia or pronounced melancholia. The therapeutic indications are first, avoidance of re-infection by special attention to the diet and care of mouth and teeth; second, the aiding of digestion; and third, the reduction of putrefactive organisms in the colon. The prognosis is least hopeful in neurotics and best when the condition is obviously due to gross errors in life which can be corrected.

CAUSES OF COLDS.

Now is the season of colds, which are conditions of advanced civilization. People who live close to nature are exempt. It is the denizen of the city, surrounded with the luxuries, who suffers the most. The contrivances that he buys to keep away the cold are quite responsible for his colds. The woodsman, who lives and works in the cold and sleeps in a freezing hut, enjoys immunity.

The sufferers from colds are not those who live in the outdoor air, but are those who spend a large part of the winter-time in an unnatural atmosphere. The air in offices, stores, theatres, factories and dwellings in this climate is bad. Its temperature is usually higher than is consistent with good health; each occupant inhales the materials that have come out of someone else's lungs; and the percentage of moisture in the air is much below normal. These defects are due to the defects of the modern heating appliances. It is a long step backwards, so far as healthfulness goes, from the fireplace of our coldless ancestors to the steam-heated radiator of this catarrhal generation.

Of all the iniquitous machinery that has ever been contrived to destroy the weaklings and emasculate the strong, the steam-heated radiator stands pre-eminent. Here is a thing which can be put in a room, and the more tightly the room is sealed against the inlet and egress of air the more efficient it is and the more is it vaunted as a successful heater. The furnace, which was cast out to give place to this thing, is eminently more rational. Every cubic foot of air from the furnace that enters a room displaces a cubic foot; it will not work unless there is ventilation. And the old-fashioned stove and the fireplace all demanded ventilation; but the radiator works best without it.

Another defect of most modern heating apparatuses is that they dry the air. Examination of the air of rooms in the winter shows from five to thirty per cent. less moisture than is present in the normal outdoor air. Our indoors winter population lives in an atmosphere so far below the point of saturation that evaporation is constantly and more rapidly than normal taking place from the skin and respiratory mucous membrane. A result of this evaporation is a sensation of coolness. It is not uncommon to find in an office a temperature of 70 or 75 degrees, or even higher, and yet a sensation of chilliness when the moisture is low, whereas in a kitchen, with boiling pots on the stove, a much lower temperature imparts a decided sense of warmth to the skin. It has been shown that persons breathing abnormally dry, warm air have the vital resisting power of their respiratory mucous membranes decidedly lowered and rendered susceptible to the complex phenomena designated as cold. Thus we find in our fine modern system for preventing coldness the conditions conducing to colds.

As heating materials become more expensive, greater economy in conserving the heat in buildings is practiced. This is done by minimizing the amount of fresh air which is allowed the tenants. Colds are the result. Colds are prevalent in winter, not di-

rectly because of the cold, but because that is the season when people shut themselves in and breathe bad air. Persons who have enjoyed pure air all the summer habitually reverse their practice, and give themselves pure air in winter only when they are out of doors. As a matter of fact, cold air is better to breathe than warm air, even though equally pure. It is more concentrated. Every inhalation of cold air gives one more oxygen than an inhalation of warm air.

The lessons which we learn from the consideration of these things are, that we should inure ourselves to the cold of winter, that we should court the fresh air, and that in heating our houses it should be done by means which give ventilation and moisture. Thoreau said that he loved the cold when it chilled his skin; he was like an oak tree, it did him no harm, because he was always in the air, be it warm or cold.—N. Y. State Jour. Med., Jan., 1907.

PEDIATRICS.

CHRONIC VALVULAR DISEASE.

CORNWALL (*Merck's Archives*, March, 1907), writing on the Treatment of Chronic Valvular Disease in Children emphasizes the importance of individualizing each case. Success in the treatment of this disease depends largely upon its general management. The most important part often consists in keeping the patient in bed. This should be insisted upon in every case where compensation has been lost. In mild cases this will often be sufficient. In severe ones no amount of treatment is of avail without it. Several months in bed does a child no harm and is not too great a price to pay for reasonable security against a relapse.

A good rule is to keep a child who has suffered from ruptured compensation, or who recently had acute endocarditis or an acute exacerbation of chronic endocarditis, in bed for at least a month after all symptoms that in any way show disturbance of the circulatory balance have entirely disappeared. This is the minimum. More often it is advisable to keep him there longer. After compensation has been established and the child is up and around, the amount and character of the exercise he takes must be regulated. While we should not risk a relapse by allowing too much freedom, on the other hand we should not restrict exercise so far as to cause the muscular system, including the heart muscle, to lose tone. In general, very little exercise should be allowed for a considerable time, perhaps a year, after restoration of ruptured compensation or recovery from acute endocarditis. Walking on the level is practically the limit in such circumstances. But after compensation has existed for a considerable time, and the heart muscle shows a fair amount of reserve power, greater latitude may be permitted. In favorable cases the patient may indulge in minor gymnastics, climbing hills, even bicycling on the level. But running, swimming and all athletic games in which there is prolonged muscular exertion must be absolutely prohibited. Regulation of nervous activity in these cases is as necessary as regulation of muscular activity. The patient should be protected as much as possible from sources of nervous excitement. In this connection the question of school attendance comes up. I believe that it is safest to keep a child from school for at least a year after all signs of cardiac insufficiency have disappeared. When he does go he should be carefully watched for signs of heart strain, such as impaired nutrition or anemia, or more pronounced signs of imperfect

compensation, such as shortness of breath on slight exertion and a dry cough. Particular vigilance is necessary at the time of puberty, when the burden of growth and development is heaviest and when extra strain in school or play easily destroys compensation.

In regard to heart tonics the following conditions should be borne in mind:

First, they should not be given at all if the recumbent position alone is sufficient to restore the circulatory balance. It is only when compensation is so far lost that the recumbent posture alone will not restore it that they are indicated. If continued after compensation has been gained they may do harm.

Second, they should not be given to restore compensation without at the same time keeping the child absolutely in bed. Although it is true that adults, under certain circumstances, may be given heart stimulants to bring their circulation up to the level while they are allowed to be on their feet, such treatment is never justifiable in the case of children.

Third, they should be given in doses suited as nearly as possible to the capacity of the heart muscle. Because a certain dose of a heart stimulant fails to bring about the desired effect promptly, it does not follow that a larger dose will produce it. Often it happens that a larger dose will produce an injurious instead of a beneficial effect. If the heart is greatly dilated and its muscle correspondingly feeble, large doses of stimulants exhaust it. In bad cases it sometimes pays to try the effect of diminishing the doses of heart stimulants instead of increasing them.

The writer prefers digitalis and strophanthus given alternately in severe cases. Strychnine may be given in conjunction with these.

SURGERY.

GASTRIC CARCINOMA.

GILMAN THOMPSON (*Cleveland Medical Journal*, March, 1907), summarizes a discussion of the Early Diagnosis of Gastric Carcinoma as follows: Conditions which combine to make operation not only justifiable but desirable.

1. The patient's age should be within the average cancer developing period, for gastric cases, *i. e.*, between 40 and 65 years.

2. There should be a rapid and decided loss of weight and strength, without other assignable cause, such as chronic gastric catarrh, neurasthenia, mental strain or worry, or chronic general disease, such as diabetes, etc.

3. There should be evidence of some degree of stagnation of food contents in the stomach.

4. There should be failure to improve in marked degree under treatment, after a few weeks' trial. With these four conditions fulfilled, exploration should be seriously considered, despite the absence of gastric pain or other marked gastric symptoms. In addition there may be:

5. A leucocytosis of 12,000 to 16,000 with polynucleosis and a moderate secondary anemia, with low color index.

6. Decided dilatation of the stomach. With these two additional factors, operation is distinctly indicated. Still further there may be:

7. Occasional attacks of vomiting, often without definite relation to food ingestion.

8. Occult or visible blood in the vomitus or stools.

9. Epigastric or right hypogastric rigidity and tenderness on deep pressure. With these symptoms added the diagnosis can admit of practically no question. In this order of relative importance of symp-

toms I have purposely left until the last, as being often unreliable, (10) the demonstration of hyp acidity or an acidity, and (11) the so-called carcinomatous cachexia, which, while plain enough towards the fatal ending, is often wanting as an early definite appearance.

By thus grouping the train of symptoms and conditions in the relative order of their appearance and importance it becomes possible to recommend operation at a period when there is hope of accomplishing something more definite than mere exploration. As to what is to be gained by early operation, first, there is always the relief of uncertainty as to the extent and nature of the disease, and as to the possibility in error in diagnosis. Second, there is the possibility of complete extirpation of the growth and the prolongation of life for three or four years before a fatal and inoperable return. Third, there is the certainty not only of some prolongation of life, but of relief from much increasing suffering, and particularly from that most wretched of deaths by slow starvation, with constant nausea, regurgitation and pain from a dilated and useless stomach. Even in the later cases, in which a growth of considerable size is obvious, operation may be of advantage as a palliative measure whenever the growth obstructs the pylorus, causing dilatation. None of the post operative cases that I have seen have suggested any cause for regret for the performance of the operation, for the late cases cannot be made any more miserable than they are under medical treatment alone, and the early cases always present at least a fair chance of very radical relief.

SHOCK.

WAINWRIGHT (*International Journal of Surgery*, Feb., 1907), reviews the Experimental Research in Shock, contributed largely by Cushing of Baltimore and Crile of Cleveland. The study of shock has shown us that its cause is the irritating or painful impulses which are produced by an injury or an operation. This, of course, was known before, and was indeed a self-evident fact. We had not known, however, in just what manner these impulses work. Crile has completely demonstrated that these nerve impulses from the injured part act mostly, if not exclusively, on the vasomotor centers in the medulla. They first cause a stimulation of these centers with constriction of the vessels and a rise in blood pressure. If these impulses are overwhelming in degree or if, being slighter, they are continued over considerable periods, the vasoconstrictor centers become exhausted. Dilatation of vessels and low blood pressure follow. With the advent of low blood pressure come on the clinical phenomena of shock. The degree of reduction of blood pressure measures very accurately the degree of shock, indeed it seems certain that the condition that we consider shock, clinically speaking, is in reality a condition of low blood pressure.

Crile has shown that the heart is in no way at fault in shock, but has less work than normal on account of the lessened resistance and if the blood pressure can be restored by mechanical or other means the heart will continue to work satisfactorily. Therefore, in true shock it is useless or even harmful to give the usual cardiac stimulant strichnin, digitalin, nitroglycerin and alcohol. It is equally harmful to give drugs which are supposed to stimulate the vasomotor centers, as it is too much stimulation which has caused them to collapse. Repeated experiments on dogs while their blood pressure was recorded and the usual list of drugs administered have shown their failure.

The only line of attack open is on the dilated vessels themselves. Adrenalin promised to be the ideal drug for this condition as it is a very powerful stimulant to the constriction muscles in the vessel walls. It acts peripherally and not through the exhausted centers. It is unfortunate that its action is evanescent, and we are now beginning to learn that it may do serious permanent harm to the vessels and heart even in single doses. The best means of supporting the peripheral vessels and raising pressure are the so-called mechanical ones. These are the pneumatic suit or tight bandages to the extremities, abdomen, etc.

Equally important with the treatment of shock after its production are the newer ideas as to its prevention. Inasmuch as the condition of shock results from the nerve impulses that pass up to the floor of the fourth ventricle from a part that is injured or is being operated on, it is evident that if the transmission of these impulses can be stopped there will be no shock. Ether simply renders dormant the sensory centers. It apparently in no degree blunts the pressure depressing effect of painful or irritating impulses on the floor of the fourth ventricle. However, if the afferent nerves to the part involved are injected with a local anesthetic these impulses are absolutely arrested, and the most serious operations can be performed without affecting the patient in any way so far as the mechanical injury goes. The question of hemorrhage, ether, exposure to cold, etc., is another matter. The main point here is the suppression of the chief cause of shock by nerve-blocking, and this procedure, if carried out, should reduce the average mortality of amputations manifold.

THE FACTORS OF SAFETY IN THE ORGANISM.

S. J. MELTZER, New York (*Journal A. M. A.*, Feb., 23), noticing the tendency of some writers to emphasize the economy of Nature in the animal organism, both as to material and energy, points out that the factor of safety in the body—the surplus above that which is demanded—is far greater than that which is required in artificial structures. For example he refers to the bilateral organs, each of which is more than capable of supplying the place of both, the kidneys, the ovaries, the thyroids, the adrenals, etc. In the non-paired organs the same prodigality of tissue and functional capacity is apparent, some organs possess at least twice as much tissue as a maximum of normal activity would require, and in other organs, especially those with an internal secretion, the margin of safety amounts sometimes to ten to fifteen times the actual need. He does not think it probable that tissues are usually inactive, such must be the exception, but they work normally only a fraction of their capacity. The power of self-repair is moreover a safety factor far beyond anything in human-made machines. While noting some partial exceptions, the rule seems to be that the organs of the body are built on a plan of a surplus of structure and energy and Meltzer therefore is inclined to question the theory advanced by some that a minimum, say of proteid ingestion, is the optimum or ideal. There are no facts that support it, and on the other hand there are facts that point the other way, such as the abundant secretion of proteolytic enzymes and the excessive capacity of the digestive tract for the absorption of proteids. These seem to be fair evidence that Nature intended this surplus of material and capacity to be used. The function of supply of tissue and energy by means of proteid food should, he holds, be

governed by the same principle of affluence that has controlled the entire construction of the animal for the safety of its life and the perpetuation of its species. In conclusion he remarks that the factors of safety have an important part in the process of natural selection. The species best provided with a surplus of structure and energy, and thus fitted to meet emergencies, are most likely to survive in the struggle for existence.

COCAIN CATAPHORESIS IN SURGERY.

D. T. QUIGLEY, North Platte, Neb., (*Journal A. M. A.*, Feb. 23), states his belief that half the operations performed could be done with his method of cocain cataphoresis and with much greater safety and less worry to both physician and patient. He states that he has used this method for removal of tumors of the breast, removal of lip for cancer, and in operations for hernia, hemorrhoids, birthmarks, moles, and epithelioma. A piece of gauze folded four times is cut the size of the part to be anesthetized and is laid on the skin, which has previously been made sterile. The gauze is then saturated with the following solution:

Cocain hydrochloric	3iss
Adnephryn or adrenal solution.....	3ii
Sterile water q. s.....	3ii

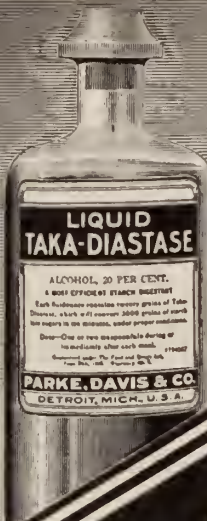
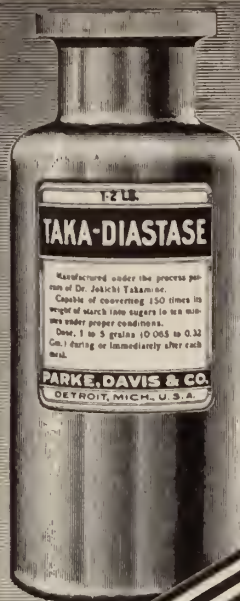
The gauze saturated with this solution is covered with metal foil connected with the positive pole of an electric battery. The circuit may be completed by the patient holding in his hand a wet sponge electrode connected with the negative pole; or a large pad electrode may be used as the negative pole and attached by a bandage to the skin near the part to be operated on. The time required for anesthesia is from 15 to 30 minutes, and may be longer for deep effect. Quigley asserts that he has never observed any bad effects from this method and suggests that the adrenalin may cause the absorption to go on so slowly that no systemic effect is observed or it may be that the amount of cocain which penetrates the skin is too small to cause any appreciable symptoms.

MATERIA MEDICA.

ARBUTIN.

WAUGH (*Merck's Archives*, Dec., 1906), contributes an article on "Arbutin." The older works on materia medica present for the student's consideration a number of plants as remedies for affections of the urinary tract. Among these we may name, as the best known, uva ursi, gaultheria, pipsissewa, other species of arbutus, and some plants from other families. Each of these has acquired some repute in the treatment of this group of diseases, but each is regarded to-day as a feeble and uncertain remedy, utilized rather as an excipient than as the main reliance of the therapist. It is a matter of interest that all these plants contain, among other ingredients, the glucoside known as arbutin. The leavers of uva ursi contain $3\frac{1}{2}$ percent arbutin, combined with 34 percent of tannic acid. The latter has so far masked the effects of the arbutin that some writers have attributed the effects of these plants to the tannic acid solely. But there are many other plants that contain tannic acid, and it does not seem altogether without significance that out of the tannin bearing plants only those also containing arbutin should have won a reputation in urinary affections. Arbutin stimulates the renal cells and exerts a local, mild, antiseptic action. The vomiting and diarrhea caused by large doses of uva ursi do not occur after arbutin, in any dose. Brunton found arbutin astringent, coagulating albumin and contracting the cell walls

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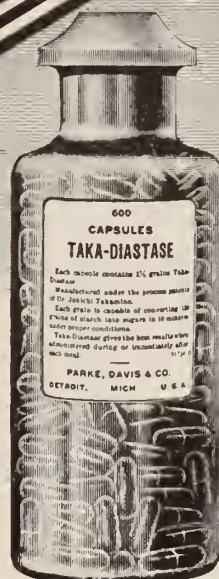
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without lessening the lumen of the blood-vessels. It checks the escape of albumin through the Malpighian tufts more powerfully than tannic acid.

Hughes found arbutin a powerful diuretic in doses of 1 grn. each. It is not toxic, as Jablonowski took within forty-eight hours 20 Gm. (5 drams) without discomfort. From its action as a diuretic, astringent, mild antiseptic, and sedative for hyperesthetic conditions, all manifested most markedly along the urinary tract, we may deduce the therapeutic possibilities of this agent. Whether introduced subcutaneously or by the mouth, arbutin is eliminated by the kidneys. The specific indication for this agent is atony or hypersecretion of the uropoietic mucosa. It combats putridity and sepsis, acting alike on the tissues of the genito-urinary mucosa and upon the urine contained therein. It corrects ammoniacal conditions of the urine. The field for arbutin, therefore, is found in the treatment of cystitis, acute or chronic; pyelitis, pyelonephritis, gonorrhea, and leucorrhea. It checks effectively and safely the loss of albumin in those cases of albuminuria where this loss is debilitating; safely, because arbutin acts at the same time as a diuretic. It soothes hyperesthetic irritability of the bladder, not so quickly as hyoscyamine but more permanently. Arbutin may be given for long periods, hence is especially suited for chronic catarrhal cases, which under its continued influence gradually approximate normal conditions—the discharge of pus slowly diminishing, the irritability subsiding, the bladder walls regaining normal contractility, and the general health improving in consequence. Among other affections for which the arbutin-bearing plants have been recommended are lithemia, gout, rheumatism, dyspepsia, nephritis, hematuria, scrofula, skin diseases, gleet, leucorrhea, and ague; as a diuretic in dropsy, in menorrhagia, chronic dysentery, bronchorrhea, diabetes, as a substitute for ergot to cause uterine contractions, and in enuresis.

It is obvious that the substitution of arbutin for the plant containing it opens up a new era in the treatment of genito-urinary catarrhs. The enormous quantity of tannic acid and of woody constituents necessarily taken with the ordinary preparations of these plants disguised the effects of arbutin, caused gastric and intestinal distress, and sadly interfered with the absorption of the arbutin. Besides, very little of this agent is present in watery preparations, unless taken quite hot. For these reasons *uva ursi* and its congeners, while acknowledged to possess a specific beneficial action upon catarrhal affections of the urinary passages, were rated as uncertain, feeble, and ineffective remedies, and were prescribed as adjuvants or placebos, with little expectation of benefit. But with the production of arbutin in a state of purity all this is changed. We have here an agent of unquestionable and remarkable power, with properties sharply differentiated from the tannic group of astringents.

Arbutin is a tonic to the urinary mucosa, correction relaxation checking the discharge alike of albumin, pus, blood, and mucus; and tending to restore the mucous membrane to a normal state. It is alike beneficial in gonorrheal and other catarrhs, acute and chronic. It is of especial benefit when the urine is fetid and ammoniacal. In the vesical ailments of old men, with dribbling, frequent micturition, the calls to urinate being so imperative that the victim cannot get to the closet quick enough, but soils his clothes, arbutin is a certain remedy the value of which will be manifested whenever it is used. Secondly, it is beneficial in the atonic dyspepsis that so frequently accompany the urinary

maladies of old men. This combination of properties places arbutin in the very front rank of remedies for this class of ailments, with no rival. In acute affections, in catheter syphilis with fetid ammoniacal urine, it should be given in full doses, up to a gram or more daily. In all cases Van Renterghen's advice should be followed and the doses given every half hour to ensure a continuous action. In chronic cases it may be given in increasing doses, beginning with 0.01 Gm. every half to one hour, and increasing until the urine is free from turbidity or blood, and then in sufficient doses to keep it clear. Arbutin gives to the urine a greenish-blue tint, changing on contact with air to a dark olive or brown green, as the hydroquinone sulphate, affected by the increasing alkalinity of the urine, is decomposed and the hydroquinone set free (Houde).

SOCIETY MATTERS.

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RUTLAND COUNTY MEETING.

The April quarterly meeting of the Rutland County Medical and Surgical Society will be held at Rutland April 16. The program includes: Differential Diagnosis of Peptic Ulcers, Cholelithiasis and Pancreatitis, C. F. Ball; Notes of a Typhoid Outbreak Drs. Clark, Martyn and H. D. Holton; Clinical Findings in Typhoid, H. R. Ryan; discussion, J. P. McDowell; Experimental Work on Opsonins, B. H. Stone; Treatment of Typhoid, O. J. Gilchrist; discussion and reports of cases, M. R. Crain.

BURLINGTON AND CHITTENDEN COUNTY.

The Burlington and Chittenden County Clinical Society met March 28. Dr. F. E. Clark read a paper on "Etiology and Pathology of Nephritis"; discussion by Dr. C. H. Beecher.

THERAPEUTIC NOTES.**COLDS AND COUGHS.**

The perfectly normal individual rarely suffers from colds. Whether the bronchi or nares are affected retention and congestion are sure to have existed. Prompt purgation and stimulation of the liver with small doses of calomel and podophyllin followed by a saline draught, the exhibition of the sulphocarbolates and a few doses of calcium sulphide, quinine and aconitine (or atropine) will, together with local cleanliness, put a prompt end to "colds in the head." The same basis treatment and the exhibition of the indicated remedy will as promptly stop coughs. An excellent formula in bronchitis is Iodoform 1-12, codeine sulphate gr. 1-24, and emetine gr. 1-67.—Dr. Abbott in *Clinical Medicine*.

OCCUPATIONAL DUSTS.—The American Institute of Social Service has received from Dr. Somerfeld, a physician and scientist of Berlin, a valuable anti-tuberculosis exhibit for the department of industrial hygiene in its Museum of Security. There are 45 vials containing as many different kinds of dust, mineral, animal and vegetable, produced in our various industries. The same number of photographs show how these various dusts appear under the microscope. Extremely realistic models in wax, colored to life, represent human lungs as they are affected by occupational dusts, other models show normal lungs for comparison; while still others show the effects of industrial poisons on the system.

DERANGED UTERINE FUNCTION.—It is safe to say that to the average physician, who is confronted almost daily with the ordinary cases of suppressed and deranged uterine function, no other class of cases is so uniformly disappointing in results and yields so sparing a return for the care and time devoted to their conduct. Patients suffering from disorders of this nature are usually drawn from the middle walk of life, and, by reason of the pressure of household duties or the performance of the daily tasks incidental to their vocation, are entirely unable, in the slightest degree, to assist, by proper rest or procedure, the action of the administered remedy. Many of these patients, too, suffer in silence for months, and even when forced by the extremity of their sufferings to the physician, shrink from relating a complete history of their condition and absolutely refuse to submit to an examination. Authoritative medical teaching and experience unite in forcing upon the attendant a most pessimistic view of his efforts in behalf of these sufferers under such conditions. It is in this class of practice, where almost everything depends upon the remedy alone, that a peculiarly aggravating condition of affairs exists. A very limited list of remedies of demonstrated value is presented for selection, and I believe I am not wide of the mark in saying that, in the hands of most practitioners, no remedy or combination of remedies hitherto in general use has been productive of anything but disappointment. Some time ago my attention was drawn to Ergoapiol (Smith) as a combination of value in the treatment of a great variety of uterine disorders. Its exhibition in several cases in my hands yielded such happy results that I have used it repeatedly in a considerable variety of conditions, and with such uniformly good results that I am confirmed in the opinion that its introduc-



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The following clinical notes will afford a general idea of its action in a variety of cases.—J. A. Black, M. D., Morgantown, Pa.

NEURASTHENIA.—To-day it is generally recognized that neurasthenia is a real morbid condition. It is not the result of modern civilization, as many writers would have us believe, but an actual disease that has probably existed as long as society. The name is not a generic term and when so used implies ignorance of the real condition it describes. Instead, it represents a specific malady with a definite etiology, pathology and symptomatology. There can be no question but that the trend of modern life, particularly under certain conditions, tends to aggravate and multiply cases of this disease. Overwork is unquestionably one of the principal causes, coupled with anxiety, worry or persistent excitement. It is a fact that the nervous system or the mental economy of any person can stand only about so much. When overtaxed the results are found to be disastrous, just as a muscle will suffer from excessive work. Add to overwork, individual habits, in-

cluding excesses of all characters, and neuropathic tendencies which are all too often the result of hereditary influences, and it can be readily seen that nerve tire is of prime importance in the development of neurasthenia. The prime object in treating this distressing condition is to restore nerve balance. Change of scene, regulation of the diet and correction of habits and faulty hygienic conditions are desirable features. But something more is always needed, and without the administration of some efficient tonic the neurasthenic will make little or no substantial improvement. The principal desideratum is to choose a tonic that goes further than mere temporary stimulation, one that will assuredly impart vigor to the nervous system, and at the same time assist each weakened organ in the re-establishment of its functions. Such a tonic is Gray's Glycerine Tonic Compound. Clinical experience has proven the therapeutic value of this well known product and under its administration the various conditions incident to neurasthenia are corrected and overcome. The nerve balance is restored, the digestive organs take up their work, normal elimination is promoted, and the various symptoms characteristic of nerve exhaustion are dissipated without the slightest evidence of undue stimulation.

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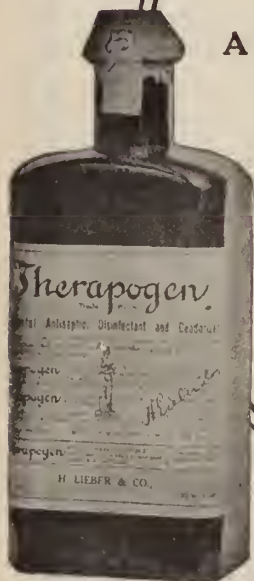
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ORIGINAL ARTICLES.

THE RELATION OF RURAL TYPHOID TO WATER SUPPLIES.

By Bingham H. Stone, M. S., M. D., Director of the Vermont State Board of Health, Laboratory of Hygiene; Adjunct Professor of Bacteriology, University of Vermont College of Medicine, Burlington, Vt.

Water is as absolutely essential to every living thing as is air or food and its distribution has been the determining factor in the location of the homes of man from the cave hut of the primitive man, the camp of the Nomadic tribes to the mighty aggregations of human beings in our great cities of today.

The earliest engineering achievements were aqueducts built to supply the increasing needs of a growing population with this necessity of life. Lake Marius in Egypt, a storage reservoir fifty miles in circumference connected with the Nile by a canal twelve miles long and fifty feet wide, was built 2000 years B. C., and furnished water for irrigation and drinking purposes to a population of twenty millions. Four thousand years ago the rulers of Assyria constructed immense storage lakes and threaded the plains of the Tigris and Euphrates with canals, one of which was four hundred miles long and from two to four hundred feet broad.

In India, New Mexico, and Carthage, we find the remains of colossal hydraulic works. In Ceylon there exists today the remains of the largest systems of storage reservoirs known to ancient or modern times. Ten years ago the restoration of one of the largest of these reservoirs undertaken four years previously was completed. Built A. D. 460 to supply Anuradapura with water, it contains an area of seven square miles.

Rome was supplied with a system of aqueducts furnishing to the city three and one-third million gallons per day or three hundred thirty gallons to each inhabitant.

As found in uninhabited regions, water is almost always wholesome and the people settling in a new land, as did our forefathers in

America, have only to procure a sufficient supply with little thought for the quality. But with the increase of population and the wastes of advancing civilization, this requisite becomes more in demand and at the same time more likely to become unfit for drinking purposes by the accumulating wastes of the very population that must have it. Every year of habitation increases in geometric ratio the pollution and the consequent infectiousness of the soil over and through which the water must run.

The beginning of the nineteenth century found the problem of water sanitation absolutely untouched upon. Much had been done along other lines toward more hygienic methods of living, but a clear idea of this element as a cause of disease was not evident.

Certain connection between grossly impure water and disease had early been noted. Hippocrates wrote upon the value of pure water some four hundred years before the beginning of our era. He advised boiling and filtering a polluted water before using it for drinking purposes. Pliny emphasized the blessings of pure water. During the middle ages, the liability of water to take into solution certain metals (lead and copper) and poison the users was studied. But all these observations were made in a loose manner and the connection failed to attract much attention. This tardy recognition of the agency of water which seems so obvious to us now is not so surprising when we consider how little was really known of the etiology of these epidemic diseases. The germ theory which renders their spread so intelligible to us now was entirely unproven and practically unknown.

A polluted water does not always present objective evidence of its character. It may be perfectly palatable; it continues to quench thirst and meet the immediate demands upon it as well as it ever did and it takes severe lessons to convince the users of a supply that the water, which their fathers drank and which they have drunk since they were children, is dangerous.

The growth of population and the segregation in the cities was gradual, and with these

conditions the increase of the, now known to be, water borne diseases was also gradual, so that their prevalence came to be regarded as a matter of course. It was only with the collection of vital statistics that attention was seriously directed to the solution of the problem of the increased death rate which was made evident by these statistics. The question of fixing the guilt of spreading epidemics of typhoid and cholera upon water was not so easy when there were no pure supplies for comparison as now, yet polluted as all of the great cities' supplies were, some were worse than others, and once having a proof of the epidemic character of these diseases and their increase, in the vital statistics, men were not long in working out the links in the chain of evidence.

The history of London and its water supply is very interesting. The story of the cholera outbreaks in 1854 and 1866 and the investigation of the Broad Street well are too familiar to all of you to need repeating. With the establishment of the germ theory, the connection between water and disease was much more intelligible. When men's minds were once directed rightly, there were plenty of instances to prove this connection.

The epidemic of Lausanne, Switzerland, which was definitely traced to a case of typhoid occurring on a little stream which was found to feed through a subterranean passage, the Lausanne supply served to clinch the evidence. From this time on up to the present time, the typhoid rate in cities has been closely followed and every epidemic of any size attracts much attention and its source is always sought for and usually found.

You are familiar with the presence of typhoid in epidemic form in recent years in Albany, Philadelphia, Baltimore, Lawrence, Chicago, Butler, Cleveland, Ithaca, and many epidemics of smaller size traced to infected water supplies. So certain is the connection between polluted water and typhoid that the death rate from this disease is considered the best evidence, in advance of analytical data, of a city's water supply. It is now agreed on all sides that water is not only the predisposing cause but is in great majority of cases the actual vehicle of infection of Asiatic cholera, typhoid fever and epidemic dysentery. Cases may be carried from person to person by other means but such cases are sporadic and comparatively infrequent. On this continent typhoid is more prevalent than cholera

and thus of more interest to us. This paper will deal more particularly with this disease.

With the fact once established that water is the carrier of infection in typhoid and cholera and with a definite conception of the *materiae morbi* of this disease, an attempt to find a remedy was naturally the next step and we find filtration early resorted to in London. In 1852 an Act of Parliament required that all water furnished for domestic purposes in London should be filtered. The first filtration plants were very imperfect, yet the improvement was so marked that there never seems to have been an idea of abandoning this purification method.

Since this time, the growth of water supply sanitation has been steady and this growth has been mostly in the way of perfecting filtration. This is the perfectly natural trend, for admitting that an unpolluted supply is always preferable to an artificially purified one, the patent fact remains that it is more and more difficult to obtain pure supplies of sufficient volume to furnish large towns, and with the tremendous increase in population in America, a supply which is pure today may not be so tomorrow.

So far perfected have methods of filtration become that general epidemics of typhoid in the cities having well constructed and operated filter plants, can be assured to be a thing of the past.

Hazen has compiled statistics as to the use of filters which are of great interest. These figures gathered in 1904 show that the combined population of cities above twenty-five hundred (2,500) in the United States is thirty-two million, seven hundred thousand (32,700,000) and that of this population three million, one hundred sixty thousand (3,160,000) or nine and seven tenths per cent. (9.7%) are supplied with filtered water. In 1900, the population supplied with filtered water in the United States was sixteen times as great as in 1890. Since the time of compiling these figures, the growth of filters has been remarkable, so that it will be safe to assert that at the present time twenty per cent. (20%) of the total population in cities of more than twenty-five thousand (25,000) inhabitants is supplied with filtered water.

The results of these costly filtration plants have fully justified the expenditure. An average reduction in the typhoid death rate of eighty-one per cent. (81%) between periods five years prior to installation of plants and five

years after, is the result in four representative cities, two in America and two abroad. That this probably means that all the water borne typhoid is eliminated is indicated by a comparison with the rates of three other cities under similar general conditions which changed from a polluted to a pure gravity supply at about the same time with a resulting reduction in death rate of seventy-four and two-thirds per cent. ($74\frac{2}{3}\%$). Not only has the installation of filter plants been followed by a reduction in the typhoid rate but the general death rate from all sources is also reduced in a remarkable manner.

Hazen shows that the total death rate per hundred thousand living in five representative cities was reduced four hundred forty. The normal reduction during the same period in cities similarly situated with no radical change in water supply, but due to general sanitary improvement was one hundred thirty-seven (137), showing a difference of three hundred three (303) in favor of the cities with a purified water supply.

Hazen concludes that the results "that have been achieved by filter plants which have been best constructed and operated, have been all that could be desired. Waters polluted by sewage and most injurious to the health of those drinking them in their raw state, have been purified so that the resulting death rate from water borne diseases has been no greater than in cities of corresponding size and situation, supplied with water from the very best sources. If any disease is caused by the water filtered in this way, the amount is too small to be measured or determined by the methods now at our disposal."

Enough has been said to show that municipalities have come to be thoroughly impressed with the importance of a pure water supply and have discovered a means of assuring its purity.

When once this stage in a sanitary reform is reached, legislative enactments to prevent pollution are sure to follow. Every State in the United States has such laws on its statute books which aim to secure pure water to its citizens. A thorough review of the various laws has been collected by Goodell and published by the United State Geological Survey in Water Supply and Irrigation Paper No. 152. These statutes vary from simple provisions making it a crime to poison wells or springs, to elaborate enactments designed to check and as

far as possible, absolutely prevent all pollution of waters by mingling with them refuse products of animal life or wastes of human industry. Several states have adopted unusual and stringent methods to enforce the right of every citizen to polluted water and in a few, strong measures have been adopted by which pollution by cities can be regulated and controlled.

It may be granted that it is within the power of any municipality to prevent the spread of typhoid through its water supply. The results of the sanitary work already done are evident in a generally lowered urban typhoid death rate. What has been accomplished in the cities already having purification plants has already been mentioned. A study of the combined statistics of the whole country shows the influence of the house cleaning in these cities by a drop in the combined death rate. The death rate in the registration cities (including most of the large cities in the country) has dropped from fifty-one (51) per one hundred thousand (100,000) in 1890 to thirty-six and six-tenths (36.6) in 1900. With the municipal water improvements now in process of installation and the others contemplated, once in operation, we can confidently predict a further material decrease. But even in those cities that have the best filtering plants, there still exists a fairly constant residual of typhoid. If typhoid is a preventable disease, why is this so? To remedy this evil the writer is firmly convinced that the city must go beyond her own doors. A study of the statistics as gathered by the Census Bureau reveals the fact that fifty-nine and eight tenths (59.8) per cent. or about forty-five million, five hundred seventy-three thousand, eight hundred forty-six (45,573,846) of the population of this country is rural, living in towns of less than two thousand (2,000) inhabitants. This percentage varies from thirty-one and eight-six-tenths (36.6) in 1900. With the municipal division to eighty-four and five-tenths (84.5) per cent, in the South Central division of the country; from five (5) per cent. in Rhode Island to ninety-four (94) per cent. in Idaho. These are the people who are outside the confines of the noisy, dusty, foully areated city, living mid the surroundings generally considered to be conducive to health and vigor. Here we should expect to find a death rate much lower than in the city and this is true of the general rate (fifteen and four-tenths (15.4) in

the country to eighteen and six-tenths (18.6) per hundred thousand in the city) and with the rate of every specific disease with one exception, that of typhoid. Consulting statistics of a decade ago, we find the city death rate for typhoid much in excess of the rural (thirty-nine (39) in the city to thirty-one and four-tenths (31.4) per hundred thousand in the country) but the urban rate has steadily decreased while the country rate has remained nearly constant until it is now twenty-five and three-tenths (25.3) in the city to twenty-five and five-tenths (25.5) per one hundred thousand in the country.

Taking this rural and urban rate in the registration states whose statistics are most complete, [a rural rate of twenty-five and five-tenths (25.5) and an urban rate of twenty-five and three-tenths (25.3)] as a basis, and applying it to the whole country, we find that for every one hundred dying of typhoid in the cities, one hundred and fifty-one and a fraction die in the country. That this proportion is actually higher is undoubtedly true for in the great South Central area with few large cities, the typhoid death rate per whole number of deaths, is much higher than in the registration states and the difference between the rural and the urban, much more in favor of the cities. This rural rate varies in the registration states from fifteen (15) in Rhode Island to thirty-one and seven tenths (31.7) per one hundred thousand in Vermont. These aggregate figures are startling yet one rarely hears of rural epidemics for the population is so scattered and the total number of deaths for a given area so small in comparison to the city, that the situation rarely appears to be alarming. One is apt to forget that one death in a village of one hundred (100) inhabitants is equivalent to ten thousand (10,000) in a city with a population of a million.

In a little village in this state with a total population of one hundred and seventy-five (175) souls, seventeen cases of typhoid fever have occurred this fall, a rate equivalent to four hundred thousand cases in Greater New York City, and yet little attention was called to the outbreak even among the inhabitants of the town. It is safe to say that none of them realized that the town was suffering from a serious outbreak of typhoid.

But for several reasons these statistics usually fail to do justice to the serious prevalence of typhoid fever in the country.

Records are never as carefully kept here as in the city and many cases are not reported.

The vacation habit is growing on the American people and more and more of the busy toilers of the city spend a greater or less part of their summers in the country. To such an extent is this so, that in some of our rural counties, the summer boarder furnishes a large per cent. of the annual income. These people flock back to the city in the fall and the typhoid which they contracted in the country is credited by statistics to the city. In three thousand five hundred eighty-five (3,585) cases of typhoid fever which occurred in New York City in 1895, Billings finds that fifteen per cent. (15%) acquired the disease out of town, while nine hundred sixty-six (966) or twenty-seven per cent. (27%) were infected by drinking water brought from the country and peddled in town. These migratory habits of our population render the rural sanitary condition of tremendous importance.

Furthermore the country is the great feeding ground for the city, furnishing milk, butter, meat and vegetables. Twenty-three (23) per cent of the above mentioned cases of typhoid occurring in New York were infected by drinking milk and every bit of this milk came from the country. Fresh vegetables are often a source of epidemics and in this way again rural typhoid influences the city rate. In short, we may say that save for a few of our cities whose water supply is notoriously polluted, typhoid fever is largely the product of rural conditions and rustic uncleanness.

Now what are the factors in this problem? Why is typhoid so prevalent in rural communities? The answer is clear. Typhoid is as much a water borne disease in the country as in the city, but here the problem is as infinitely more complicated than it is in the city as there are more water supplies for the same number of people.

Just as long as something over forty million of people in the United States take the water most available in an economic way with no knowledge or regard to its sanitary fitness, just so long will typhoid be prevalent in the country, spreading infection to the city. As Bashore aptly puts it, "Though these rural supplies come from many different sources, wells, springs and small streams, scattered through the country, it has been found that they are

very similar in one respect, their utter unavailability for furnishing a suitable drinking water. Whether we take it in Canada, Pennsylvania, Florida or in Cuba, this unfitness in the rural drinking water is a striking feature."

In Vermont with its largely rural population and its rural typhoid death rate of thirty-one and one-tenth (31.1), the country family is largely supplied with water from the family (shallow) well which was dug in almost every instance with an idea to convenience, close to the barnyard and out-house.

In an examination of two thousand eight hundred forty-two (2,842) of these supplies, we have condemned two thousand three hundred seventy-nine (2,379) or eighty-three and seven-tenths per cent. (83.7%) as polluted and dangerous. In the community referred to above with a population of one hundred and seventy-five (175) and seventeen (17) cases of typhoid, water from twelve water supplies was examined and ten specimens found grossly polluted. (Of the polluted sources, seven were wells, three streams and two springs). Is it surprising that typhoid once introduced, spreads in this hamlet? The source of infection in these old wells is, of course, in most cases, infected ground water. They are usually constructed with an idea of keeping out the surface water. The cess pool, privy or sink drain are almost always in close proximity and the ground for many feet has become saturated with organic filth. Unfortunately the soil condition in very few localities is such that it furnishes effective filtration. Much of the geological formation in the Appalachian region consists of upturned strata, admirably suited to conduct surface filth from a considerable distance into even deep wells. Much of the top soil is coarse gravel.

Numerous examples of these conditions have come to the attention of all sanitarians. The countryman does not know of this danger and it is hard to make him realize it. He will lay sickness to anything before he will suspect the family well which his great grandfather dug and from which his family has drunk ever since. The water which his grandfather drank is good enough for him. He fails to realize that since the time of his grandfather, the ground has become polluted in geometric ratio with advancing years and that he is drinking the water which his grandfather drank and which he himself drank a few days before, in a more literal way than he imagines. Bearing in

mind the occurrence of walking typhoid and the developments of recent years with regard to retained typhoid bacilli in convalescent cases and reflecting that comparatively few cases of typhoid fever in the country have a trained nurse to watch out for the disinfection of excreta, it is not strange that many of these wells become infected.

These wells, when once so infected are admirably suited to keep the specific germs alive the maximum time. Wheeler found the organism to live seventy-nine days in well water protected from light.

The possible factor of railroads in introducing typhoid into the country should be considered. It has been calculated that every mile of railroad in this country is travelled by an average of seventy-five thousand (75,000) people each year. It is not difficult to conceive that heavy rains may occasionally wash infected material from these roadbeds into places whence it may find its way into water supplies.

The lessening of typhoid fever in the country is surely a problem worthy of attention of sanitarians and one which can not be neglected much longer. The first step toward remedying the present condition must be educational. The user must be taught to regard his old well with distrust until it is proven to be safe.

This is no easy task but once you have demonstrated to him in a conclusive manner, the danger, he will be anxious to remedy the condition as is his city brother. The rural population of this country is made up largely of people of high intelligence and they are drinking these polluted waters with serenity simply because their attention has never been called to this danger. The country inhabitant is firmly grounded in the fallacy that the city is the great source of typhoid fever. He observes that invalids are sent into the country to recuperate; never from the country into the city unless it be to a hospital for surgical services. To accomplish this first step toward his education, he must be furnished with the means of ascertaining the condition of the water he is drinking. Free water analysis is essential to this end. Though in many cases the trained observer would need no analytical data to be assured of the danger from a certain well, the owner will not be convinced in any such way as this. He does, however, have a profound respect for the results of the analysis. Our Laboratory force is kept continually

busy with these requests. Polluted wells are condemned and we confidently expect to see a material lowering of the rural typhoid death rate as a result of this work by the time of the next general census.

More likely than not, the farmer decides to have his well water analyzed to demonstrate to the city boarder its purity or to satisfy himself regarding some fancied medicinal quality. In nine cases out of ten, it is found to be polluted. The result usually comes as a shock to him, but when he fails to find any motive for deceit on the part of the analyst, he is convinced. He tells his neighbor about this result, and he in turn wishes the water from his well examined. You have now accomplished the first step toward the education of this man and you have started the process in the neighbor.

The next thing to do is to suggest a remedy, and here to have to deal with difficulties which are unknown to the city sanitarian. The solution must be financially within the reach of the country household. In small valleys of ten or a dozen houses, it is usually possible to find a spring source of purity at a distance which by co-operation of the neighboring families is not prohibitive, and this can sometimes be done in the isolated farm house. This solution should be advised in all cases where practical. More often than not, the distance to such a pure supply places this solution out of the question and the remedy must deal with conditions as they exist. It is usually possible to dig a new well if the ground formation is such as to give any promise of improvement. Unfortunately, this is too seldom the case and the question of purifying the water in the existing well must be considered. This is a problem which furnishes little attraction in a financial way, which probably accounts partially at least for the small amount of work which has been done on it by sanitary engineers, yet it is one which, by reason of its vital importance not alone to the country but to the city also, should have careful consideration. If there is anything in the construction of these wells which will insure a pure supply, it should be perfected and made public. Several methods are mentioned in books dealing with rural hygiene; one known as Koch's Method consists of placing a perforated pipe in the centre of the well midway between the sides and midway between surface and bottom and filling the well with sand. This sand performs

the mechanical function of a filter or strainer. Another method consists in cementing the sides in such a way that all the water must come through the bottom of the well hence must have passed through the earth a distance equal at least to the depth of the well. The possibility of rendering an infectious well innocuous by the use of copper sulphate should also be considered. A domestic filter of the Berkfeld or Pasteur-Chamberlain type may possibly be adapted to country household needs. None of these methods are of very reliable efficiency and in case a spring supply of known purity can not be obtained, it is advisable under present conditions to resort to cistern water. With tin or slate roofs, water can be obtained in this way in a comparatively pure condition with a cistern constructed in a proper manner so that the water is filtered through sand before reaching the storage reservoir.

The problem may be attacked from its other side by providing a safe and economic way of disposing of the dangerous wastes of small villages or isolated farm-houses. Especially should information regarding the disinfection of the discharges from typhoid fever cases be made public. Too many of our small country towns are emptying their privy wastes into the brooks which are used by families, farther down, for drinking purposes. How can the village in the narrow valley dispose of its sewage? The solution adopted in the city is completely beyond the resources of the hamlet.

These are living questions and questions that are staring us in the face and demanding a solution. They are questions which are affecting every one of us in a more or less direct way. Questions which must be solved if we advance much farther in the work of eliminating these diseases which are known to be preventable and whose occurrence is therefore a disgrace to civilization.

SOME EXPERIMENTS ON THE TYPHOID BACILLUS IN WATER AND ICE.

By John M. Wheeler, M. S., M. D., Burlington, Vt.

It is generally conceded that the disease most to be dreaded from drinking "impure water" is typhoid fever. It is also conceded that the causative agent of this disease is the organism *bacillus typhosus*. Therefore, a great many observers have turned their attention toward this organism, and much experimental work

has been done with a view to ascertaining its behavior in water under different conditions. Yet the statements in our text-books in regard to this are for the most part general, and notably contradictory. For example, Osler¹ says: "In sterile water the bacilli retain their vitality for weeks, but under ordinary conditions in competition with other saprophytes they disappear within fourteen days. Whether an increase in water can occur is not finally settled, but it probably may take place to some extent at first . . . In ice they may live as long as eighteen weeks, though a majority die in two weeks."

Stengel² is responsible for the statement that "the typhoid bacillus is peculiarly resistant, and may thrive upon clothing, in soil and in water for a long time. Cold has no effect, the germ being virulent after freezing and thawing several times."

A number of elements enter into the problem of the behavior of the typhoid bacillus in water. Probably the more important factors are (1) the conditions of the organism as to strain and vitality, (2) the character of the water and (3) the degree of light to which the organism is subjected.

The strain of the organism is probably an unimportant factor. For when series of experiments have been carried out with organisms from different sources, the results obtained with one strain of the organism have been almost identical with those obtained with others. It is probable, however, that the length and character of artificial cultivation has some influence on the longevity of the typhoid bacillus in water.

The experiments recorded below reveal something as to the effect of diffuse daylight on the typhoid bacillus in water. They also give some information on the effect of the character of water, especially as regards pollution and temperature. These experiments were all carried out at the Vermont State Laboratory of Hygiene at Burlington, during the years 1904, 1905 and 1906.

A stock culture of *B. typhosus* used in routine work at the laboratory was employed in the experiments. This strain was obtained from Dr. Park, of New York, and has been under artificial cultivation for a number of

years. It is known as the Ehrlich strain. In all cases broth cultures (twelve to twenty-four hours) were used for inoculation.

First experiments were made with a view to determining the effect of the kind of water, moderate degrees of temperature, and diffuse daylight upon the typhoid bacillus in water.

Pint bottles of plain glass were used as receptacles. Into each was put about one-half pint of water as follows: four bottles, distilled (single) water; four bottles, Burlington tap water; four bottles, polluted well water.

The distilled water was free from organic pollution; the Burlington tap water was rather low in organic pollution; and the well water was rather high in organic pollution.

Three kinds of water: Single distilled, tap, polluted well.

Three temperatures: Refrigerator, 50°-53° F.; room 68°-72° F.; body, 98°-99° F.

Two degrees of light: Dark, diffused daylight.

The bottles of water were sterilized in the autoclave. Then each bottle was inoculated with one drop of a twenty-hour bouillon culture of *B. typhosus*.

The bottles were divided into four groups of three, the groups containing one bottle each of distilled, tap, and well water.

One group was placed in the refrigerator; another group in a room temperature incubator; another on a shelf about three feet from and to one side of a north window, which at no time admitted sunlight; and still another group of three in a body temperature incubator.

Agar plates were poured immediately after inoculation and every second day thereafter. The colonies were counted after two days' incubation in the body temperature incubator, and the counts were recorded.

To detect possible contamination, colonies were frequently fished from the plates and incubated in bouillon. Hanging drops of the broth culture were examined, and the broth tested for the Widal reaction.

The lengthy and wearisome tabulations are here omitted, and the maximum length of life under the different conditions is summarized in the table following:

	Dark.		Light.	
	Ice-chest. 50°-53° F.	Body Temp. 98°-99° F.	Room Temp. 68°-72° F.	
	Days.	Days.	Days.	Days.
Distilled water ..	17	15	37	13
Tap water	21	17	43	15
Well water	37	17	79	15

Light.—It is generally agreed that sunlight is detrimental to the typhoid bacillus.

Clark and Gage³ found that when in water spread out in a thin layer in the sunlight they were destroyed in one hour or less, and when exposed in bottles sterilization was complete in five hours.

Apparently, little work has been done to show the effect of diffused daylight on the organisms in water.

Buchner⁴ calls attention to the germicidal action of sunlight, and to the less powerful action of diffused daylight. After a series of experiments not related in detail, he concluded that sunlight is a more potent factor in reducing the number of bacteria in natural bodies of water than sedimentation and other factors. And to make a practical application he suggested running sewage into large, flat reservoirs for disinfection.

The results of my experiments showed diffuse daylight to have a detrimental action on *B. typhosus* in the three varieties of water employed. But its action was most manifest in the case of the well water, in which typhoid organisms lived for seventy-nine days in the dark, as against fifteen days in the light. It was also noticeable that marked reproduction took place in the dark, whereas in the light there was a gradual decline in numbers from the first.

Further experiments along this line would be of value. The depth at which the germicidal action of light is active could be determined more or less satisfactorily by sinking sealed typhoid inoculated bottles of water at different depths in a body of water exposed to light and making comparative counts at regular intervals. It seems probable that the germicidal action of diffused light has been

under-estimated in considering the length of life of the typhoid bacillus in water.

Organic Pollution.—The degree to which the presence of organic matter favored the viability of *B. typhosus* in sterilized water in my experiments was considerable at all temperatures, but most marked at room temperature. In the room temperature incubator, the organisms not only remained present for a much longer period of time in the polluted well water, but showed a far greater power of reproduction in the well water than in either distilled or Burlington tap water. But it should be borne in mind that at least one factor which is generally recognized to be of importance is eliminated in the use of sterilized water. This is the antagonism to the typhoid bacillus exerted by saprophytes which exist in such great numbers in water high in organic pollution.

Temperature, moderate degrees.—In bouillon the optimum temperature for growth of the typhoid bacillus is about that of the body. This is suggestive that this temperature of water might be the most favorable to the typhoid organism. But such does not seem to be the case.

Clark and Gage⁵ found the maximum temperature in water which *B. typhosus* can endure to be about 176 F. for five minutes exposure, and they found body temperature to be less favorable to the typhoid bacillus than room temperature.

Reference to the tabulated results of my experiments shows the length of life and power of reproduction to be greater at room temperature than at ice-chest or body temperature in distilled, tap, and polluted well (sterilized) water.

To summarize, it is evident that in sterilized water the presence of organic matter is favorable to the multiplication and longevity of *B. typhosus*; that diffused daylight acts unfavorably; that room temperature is more favorable than body temperature or ice-chest temperature. The optimum conditions, then, appear to be a temperature of about 68°-72° F., the presence of considerable organic pollution, and the exclusion of light. It was found that under these conditions considerable increase in numbers took place for about two weeks, that the decline which follows was gradual, and the persistence of the organism was much longer than when these conditions were not operative.

Low degrees of temperature.—The question often arises in a practical sort of a way as to whether or not ice frozen from condemned water is safe for domestic use. Special interest has been aroused in regard to this question recently by the investigation of the ice supply of New York City, with special reference to ice harvested from the contaminated Hudson River. There is much diversity of opinion on this subject among investigators.

In 1887, Prudden⁶ carried on a series of experiments in connection with his investigation of the ice supply of New York City. He put into a series of sterile tubes five cubic centimeters of water which he had sterilized and seeded with *B. typhosus*, and then froze the water at 14° to 30° F. At the end of one hundred and three days he found large numbers of the organisms alive. At the end of this period the experiment was discontinued. As a result of his investigation, Prudden concluded that ice frozen from sewage contaminated water was a real source of danger as to typhoid infection.

Recently Zeit⁷ performed an experiment similar to that by which Prudden obtained his results. He used the same amount of water (filtered Chicago river water) in test-tubes, excluded light, and admitted air by use of cotton plugs, as did Prudden. Yet, on melting the ice, and plating in agar all the water in the tubes, he found no typhoid organisms present after the first day.

Clark and Gage⁸ report a series of experiments on the viability of *B. typhosus* in ice, and also in water at about 33° F. They conclude that most organisms are destroyed quite rapidly by the effect of cold either in fluid culture or when frozen in ice. Clark⁹ points out that in the process of freezing the organisms are expelled from the water frozen into the water below, and claims to have established it "by determination of the numbers of bacteria in the ice, and in the water under the ice, and by chemical analyses which showed that the greater portion of insoluble organic matter is expelled from ice during natural freezing."¹⁰ But, they (Clark and Gage) say that when caught in ice the germs will live "for a considerable length of time." But in their experiments the morphological and cultural characteristics were so different from the original type that these organisms were unrecognizable. Nor could they be reverted to the original type by extended cultivation.

In the winter of 1904-1905, B. H. Stone¹¹ carried on experiments at the Vermont State Laboratory of Hygiene to show the effect of low temperature on typhoid infected water. In these experiments a sixteen quart tin pail, with a cover, and with sides sloping so as to make its diameter at the top about two inches greater than at the bottom, was used. This pail was nearly filled with tap water, sterilized and then inoculated with typhoid bacilli when the water had cooled. The pail with its contents was then packed in sawdust so that freezing would take place mostly from the surface, as occurs in nature. The temperature of this water was then lowered to near the freezing point, and agar plates made from the surface. About five cubic centimeters of the seeded water was then dipped from the surface with a sterile tin capsule about two inches in diameter. This capsule with its contents was floated upon the surface of the water in the pail. The pail was then covered and placed outside in zero (F.) weather. After twelve hours the ice had acquired a thickness of one-eighth of an inch, and the water in the capsule was entirely frozen. Pieces of ice were removed from the surface and melted in sterile plates, and the ice in the capsule was melted. Relative counts from agar plates which were poured showed a reduction from 6,000 organisms per cubic centimeter on the surface before freezing to twenty per cubic centimeter in the ice outside the capsule and sixty per cubic centimeter within the capsule.

Again surface water was dipped into the capsule, and the pail of water with the capsule floating on the surface was exposed to the cold. At the end of twenty-four hours or thirty-six hours from inoculation one-half inch of ice had formed on the surface, and plating showed the ice outside the capsule to be sterile, and the number in the ice within the capsule was further reduced to thirty-six per cubic centimeter.

On repetition similar results were obtained. It was also found that after thirty-six hours' exposure the unfrozen water at the bottom of the pail was sterile. The water in the pail finally was allowed to freeze solid and was found to be sterile after twelve days' exposure.

Dr. Stone calls attention to the fact that the conditions of these experiments are somewhat artificial, as no water which contains typhoid bacilli would ever be found in nature free from other organisms, "but it can hardly be conceived that the presence of other bacteria

would render the typhoid germs more resistant. In fact the effect would probably be the reverse."

In the winter of 1905-1906, a series of experiments was carried out by the writer with the use of methods similar to those which Dr. Stone had employed the year before. These experiments were made with a view to getting more information on these points: 1, The effect of freezing the typhoid germs in water. 2, The matter of expulsion of the organisms into the water below in the process of freezing.

It will be noted that Dr. Stone's experiments did not seem to substantiate the conclusions of Clark and Gage relative to the expulsion of the typhoid bacillus in the process of freezing, inasmuch as there was no marked difference in the bactericidal effect of freezing, whether within the capsule (where expulsion was impossible) or outside the capsule. However, it occurred to the writer that the metal of the capsule itself might have some bactericidal influence on the organisms in the small amount of water contained therein.

So in these experiments several porcelain capsules were substituted for the tin capsules and a little more was dipped from the surface. And in some of the experiments a pail enamelled with "water glass" (sodium silicate) was substituted for the tin pail. And two different strains of the typhoid bacillus were used.

In a general way the results of my experiments confirmed those of Dr. Stone's, but it was found that destruction of the bacteria was not quite so rapid in the enamelled pail as in the tin pail, in which the organisms were subject to the bactericidal influence of small amounts of inorganic metal from the tin pail.

From a study of the results of these experiments it is evident that the typhoid bacilli in water in the capsule suffered as marked decrease in numbers during the process of freezing and as speedy extermination in ice as occurred outside the capsule. Certain it is that in the freezing process, the typhoid bacilli were not expelled from the water in the capsule in the water below. And in my experiments the average of bacterial counts from the ice in the capsules was slightly lower than that from the ice outside the capsules, where expulsion was possible. The theory of expulsion would be a difficult one to prove, and inasmuch as the authors have offered no proof it may be regarded as entirely uncalled for. This point has a practical bearing in the matter of "flood-

ing" ice, a process carried on by some ice harvesters to increase the thickness of the ice. The ice formed from the flooded water on the surface of pre-formed ice is comparable to that in the capsules in my experiments—that is, ice formed where expulsion of bacteria into the water beneath is impossible. "Flooded" ice, then, should be as pure *bacteriologically* as the ice below, after it has been frozen the same length of time.

At present there is no reliable method for identifying the typhoid bacillus in the presence of other forms of sewage bacteria. But many observers have demonstrated the close kinship between the typhoid bacillus and the colon bacillus. Of the two organisms, however, the colon bacillus is the more resistant. Moreover, the colon bacillus is thought to be always present with the typhoid bacillus in sewage contaminated water.

To compare laboratory results with actual findings in nature, it was thought that a fair test would be to examine ice which had formed on the surface of Lake Champlain from water, some of which was known to be contaminated with the typhoid bacillus. Accordingly, samples of ice were collected from four different places on the lake.

1, Thirty feet from the point where the Burlington sewage empties into the lake; this ice was soft, colored, and contained small particles of sewage material; 2, about four hundred feet south of this point; 3, the slip first south from Maple street; 4, about one hundred feet west of the breakwater out from the foot of Maple street.

In the last three named places the ice was hard and clear. The samples were taken from below the upper layers of the ice, so they would not contain ice formed on the surface of the originally formed ice. This ice had been frozen for about a month.

The samples of ice were rinsed in boiling water and allowed to melt in sterile capsules at about the body temperature. One, two, and three cubic centimeters from each sample were put into neutral red lactose broth fermentation tubes. These tubes were allowed to remain in the body temperature incubator for forty hours, and no gas or canary yellow color was formed in any of them. So it may be concluded that *there were no colon bacilli in six cubic centimeters samples from any of the ice.*

It is beyond doubt, that the water from which the ice at the mouth of the Burlington

sewage system was formed contained the colon bacillus, as fecal matter was present in both the ice and the water under the ice. And it would seem a fair conclusion that if the water at these points had contained the less resistant typhoid bacillus the ice there formed would have been free from this organism.

These results, showing the colon bacillus to be absent in ice, are in accord with those obtained by the Massachusetts State Board of Health, as their report in 1900 says: "In not one instance of the still freezing of ordinary polluted water . . . have we been able to find *B. coli* in the ice formed."

Reproduction in water.—Osler's feeling of doubt regarding the possibility of reproduction in water has been shared by many writers, but my experiments would seem to prove beyond a doubt that there may be an increase in the number of organisms for some days. This is particularly noticeable with regard to the bacilli in the well water.

The effect on B. typhosus of the growth of other organisms in water with it.

It is generally believed that the presence of other organisms is detrimental to the typhoid bacillus in water.

Much has been written on bacterial antagonism, and in many of the experiments which have been carried on the typhoid bacillus has been used, but the greater part of this work has not been done with the use of water as a medium. The great trouble has been that no reliable method has existed for identifying the typhoid bacillus in the presence of other bacteria. However, by various methods antagonism to the typhoid bacillus has been established on the part of many of the common bacteria of soil and water.

In studying this problem it seemed desirable if possible to use a method by which certain definite species of bacteria could come directly in contact with *B. typhosus* in water.

Many experiments were tried, but in determining the presence or absence of the typhoid bacillus in the water, and in making comparative counts of the bacteria present, success was met with in the case of but one combination—the typhoid bacillus and the bacillus of carrot rot, which lives in water as well as in the soil.

Three eight-ounce bottles were nearly filled with Burlington tap water, plugged with cotton and sterilized. The water in one bottle was inoculated with one drop of broth culture of *B.*

typhosus, a second with the same amount of *B. carotovorus* culture, and a third with one drop of each. These bottles were then placed in the room temperature incubator, and every few days plates were poured. Those poured from the pure culture of *B. typhosus* were incubated for two days at 37° C.; those from pure culture of *B. carotovorus* three days at 22° C. For typhoid growth the plates poured from the mixed culture were incubated for two days at 37° C. and those for *B. carotovorus* growth for three days in 22° C. incubator. Colonies which showed growth in the warm incubator were frequently fished, and in each case after incubation in broth showed typical motile hanging drops, and responded to the Widal reaction.

The results follow: *B. typhosus*, pure culture.—In about three weeks the water was sterile.

B. carotovorus, pure culture.—There was a great increase in numbers, and at the end of fifteen weeks they were still alive in increased numbers.

B. typhosus and *B. carotovorus*, mixed.—Both organisms showed a marked increase in numbers, the increase on the part of *B. carotovorus* being greater. At the end of fifteen weeks both organisms were alive in large numbers, the *carotovorus* still exceeding.

Thus it was shown that *B. carotovorus* greatly favors the reproduction and prolongation of life of *B. typhosus*, when seeded with it in sterile tap water.

As far as can be learned this is the only case of symbiosis reported in literature in which the typhoid bacillus is a partner.

CONCLUSIONS.

1. There is no marked difference in the behavior of the typhoid bacillus whether in sterilized distilled or sterilized Burlington tap water, and neither is as favorable a medium as sterilized polluted water.

2. There may be an appreciable reproduction of the typhoid bacillus for days after inoculation into sterile well water containing organic pollution.

3. Diffused daylight acting through a thin layer of water is decidedly detrimental to the typhoid bacilli in the water.

4. The optimum conditions in sterilized water for the development of the typhoid bacillus are a temperature of about 68°-72° F. (about room temperature), the presence of considerable organic pollution, and the exclusion of light. Under such conditions there is

a marked increase in numbers, continuing rather constantly for a number of days, followed by a gradual and slow decline.

5. Not all saprophytes act antagonistically to the typhoid bacillus in water. At least one organism (*B. carotovorus*, Jones) seems to manifest a symbiotic relation to the typhoid bacillus.

6. In the process of freezing there is a great reduction of typhoid bacilli in water.

7. Typhoid bacilli do not live long in ice.

8. The process of destruction of the typhoid bacilli is as marked when expulsion into the water beneath is eliminated as when it is not. Therefore, whether typhoid bacilli are or are not expelled into the water beneath in the process of freezing in natural bodies of water, it should not be considered an essential factor in the bacterial purification of water by freezing.

9. Ice harvested from ponds and lakes, even if subject to sewage contamination, probably is not a source of danger as a means of producing typhoid infection.

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NOTES OF A TYPHOID OUTBREAK IN MILL RIVER VALLEY.*

By Charles S. Caverly, M. D., President of the Vermont State Board of Health, Rutland, Vt.

Flowing off the Green Mountains, in the town of Mt. Holly, Vt., in a northwesterly direction, and finally emptying into Otter

Creek, is a small stream known as Mill River. It is about fifteen miles long; is a swift mountain stream, having its source in the town of Mt. Holly, at the village of Mechanicsville, and receiving contributions from various branches, East and West, all fed by natural springs in the hills. Mill River flows down a narrow valley in the town of Wallingford and Shrewsbury, breaking through a gorge in the town of Clarendon, where it turns West to reach the valley of the Otter. In winter and spring this stream is a wild torrent, often filling its banks, and in summer and fall it is correspondingly low. There are, along its course, several small villages.

At its start is the village of Mechanicsville, then, in order, those of East Wallingford, Cuttingsville, East Clarendon and Clarendon, each with less than 200 people. There are, besides, scattered farm houses along its banks with their outbuildings.

It would be hard to imagine better natural conditions than obtain about this stream for pure wholesome water. To the casual observer, the presence of the scattered population of this valley might seem innocent of harm to the water of this stream. To anyone who is at all familiar with the history of typhoid outbreaks, these little villages would surely suggest possibilities of harm. Each village has, of course, its sewerage, though crude. Out-houses, cesspools, and sink drains are everywhere in evidence, seldom so located as not to threaten the purity of the Mill River water—especially during the times of thawing ice and snow and heavy rains, and yet it is probably true that there are few streams in New England less open to suspicion of being polluted by human excreta to a dangerous degree.

In October, 1905, a man working near this stream in the village of Cuttingsville, and drinking freely of the river water, was taken sick and removed to his home in Mt. Holly, at some distance from the stream or any of its tributaries. There, he had a lingering illness lasting most of the winter. He had several physicians, some of whom diagnosed his case as one of typhoid fever; one thought he had gastric ulcer, and possibly there were other theories as to the nature of his sickness. He had intestinal hemorrhage. There was no Widal test of the blood in this case. Six weeks after he went home, two children and subsequently a third in his family were taken sick. The blood from these cases responded to the

*Read before the April Meeting of the Rutland County Medical Society.

Widal test. The discharges from these cases could not, by any possibility, reach Mill River or any of its tributaries.

On November 11th of the same fall, a child living close to the Mill River in the village of Cuttingsville, was taken sick and died of typhoid fever. The diagnosis in this case was confirmed by the Widal test.

There was at this house a well which was not supposed to furnish drinking water, but which was pumped into the house for washing purposes. This well was below the level of the stream. This child may have drank of this well water or, possibly of the water from the river itself.

The stools from this case were thrown on the bank of the stream during November and December, at a time when the ground was frozen, and covered more or less with ice and snow. There is no reason to think these stools had any sufficient disinfection. That they were washed into the stream at the first thaw cannot be doubted. This case furnishes the first direct evidence of pollution of the river water by typhoid stools that is obtainable.

The following case may be traceable thereto. It was that of a woman living below (North) of Cuttingsville in the same valley, who was taken sick the following April, and had a run of typhoid fever at the home of a relative in East Wallingford. It was learned that she had been accustomed to drink milk from pans washed in the river water. The stools from this case could not have reached the stream.

In the following August, a lad of sixteen, who was summering in Cuttingsville and was amusing himself meantime building a bridge across Mill River, drank freely of the water. He was taken sick August 20th and had a typical and moderately severe run of fever. The diagnosis in these last two cases was confirmed by blood examinations.

There were, then, up to this time, seven cases of typhoid fever, in four of which it is reasonably certain that the river water figured as the cause. The three cases in the family of the first case in Mount Holly were quite likely secondary to the advent of that case into the household. They may have been due to fly infection of food and carelessness in the management of the stools. This supposition is warranted because of the difference of opinion among the physicians as to the diagnosis of the first case.

Subsequently, during the six weeks following the last case I have mentioned, I have been able to find fifteen cases occurring among the permanent or transient population of the village of Cuttingsville. Of these, one was a man who had been employed at Cuttingsville, boarding with a family in which were two cases, who went to Mt. Holly when taken sick; two were in the town of Wallingford near the river, and between the villages of East Wallingford and Cuttingsville. One of these last two was a man employed at work in Cuttingsville, and the other was a child who lived only a little distance above Cuttingsville and probably visited that village frequently.

Another case which is fairly attributable to a visit to Cuttingsville was a person who had the disease in Wallingford village. And still another of the same kind was a man whose home was in the East part of Shrewsbury where he had the disease.

The remaining ten cases all lived in Cuttingsville village. That the above mentioned 22 cases were all typhoid fever there can be little doubt. The diagnosis was confirmed in the majority by the Widal test.

There was some difference of opinion about the diagnosis in the first case and in one or two others at first but, there was general agreement, I believe, finally, that the diagnosis of typhoid was correct. The delay in making the diagnosis in some of the cases may have been responsible for neglect of the stools. Thereby these un-disinfected stools may have added to the pollution of the river.

The attention of the State Board of Health was first drawn to this outbreak by rumors which reached it through accidental sources early in October. In looking for an explanation of the outbreak, attention was immediately drawn to Mill River, in the immediate vicinity of the village of Cuttingsville. The cases were somewhat scattered, but the brunt of the epidemic was at Cuttingsville and all were traceable directly or indirectly to a stay in this village.

The first case, and at least four of the later ones, were known to have drunk directly of the river water. It was certain that all the others had drunk water in Cuttingsville excepting the three children in the family of the first case. The people of Cuttingsville were promptly warned against the use of unboiled water from any source, and no more cases of fever devel-

oped thereafter. These facts point very directly to water pollution in this village as the cause of the epidemic. They point quite surely to the water of Mill River.

At the same time that the people here were cautioned not to drink unboiled water, a systematic examination of all sources of water and milk was instituted. The only common milk supply was examined and found pure. The water supply of the people of Cuttingsville comes from individual wells and springs chiefly. Several families have a common supply from a branch of Mill River taken out some distance East of the village, but there were no cases of fever among the users of this water.

Most of the wells are below the water in the river and the canal that diverts the water from the river at this point and conducts it through the lower part of the village. It has long been noted that the water in these wells rose and fell with the water in the river; and there can be no doubt that these are fed by river water more or less directly.

Of six well waters examined at the Laboratory of Hygiene, all were pronounced polluted. In most cases the chlorine alone would condemn the water; and in only one sample was the colon bacillus found.

But water examination was not confined to the well waters at Cuttingsville village. From the first of October to the middle of January, the water of most of the wells and springs utilized for domestic purposes in Cuttingsville and several in East Wallingford, were examined, also the river water at Cuttingsville and above and below that village. Thirty-three samples of water were analyzed at the Laboratory. Of this number, 20 were from springs and wells, and the stream mentioned East of Cuttingsville which furnished several families in that village, and 13 from the river.

One sample taken from the river in Mt. Holly was condemned by reason of the presence of chemical impurities. In East Wallingford village, 7 samples were taken. Four of these were from springs or wells and three from the river.

All of these samples were condemned.

In Cuttingsville village, 23 samples were taken. Sixteen were from springs and wells and the East branch (as mentioned supplying several families), and 7 from the river. Of these 23 samples, 4 were pronounced pure. These were all springs situated well up the side of the mountain. Twelve of the spring and

well waters were condemned and all 7 of the river samples.

A sample of the river water taken at East Clarendon and another taken at Clarendon were pronounced pure. These were taken in the month of January, while samples of the river water taken at the same time at East Wallingford and Cuttingsville were polluted.

In general it may be said that the well waters examined from both East Wallingford and Cuttingsville quite uniformly contained very large amounts of chlorine. In some instances this was astonishingly high. In one instance it was reported as 5.7 parts per million; in another, 9.2; in another, 3.4; in another, 8.5; in another, 4.0; and in one instance, 44.0 parts. The ammonias, nitrates, and nitrites in some instances also pointed to either recent or remote pollution. It should be stated that colon bacilli were often found, too, in both river and spring and well waters. These germs were indeed found in some spring waters well above the valley.

Careful analysis of the results obtained from all these examinations of the waters in this valley seems to warrant one general conclusion, viz., that most of the waters used for domestic purposes in this valley are polluted. It is known that the Mill River carries more or less sewage from every village from Mechanicsville to Clarendon. The analysis of the water at various points confirms this. Though it must not be overlooked that samples taken in mid-winter from the two villages lowest down showed no pollution. This may perhaps be explained by the season, and the purifying effects of sedimentation and aeration during its flow of three and six miles respectively from Cuttingsville to the points whence it was taken.

The wells and probably many of the springs at both East Wallingford and Cuttingsville are located in sewage-saturated soil, soil that holds the animal excreta of long years of surface, cess-pool and privy-vault drainage. These wells and some of the springs are probably fed by the river also.

It is undoubtedly a fact that all these waters have lacked for years to start a typhoid epidemic has been a case in either village. The case was evidently supplied sometime during the summer or fall of 1905. We cannot tell by any facts brought out by our investigation just where this case was, or at what point the water supply of the valley was first poisoned.

With the subsequent history of the epidemic

in mind it seems quite likely that the river water contained the typhoid germs at that time, and that these cases acquired the disease either from this water direct or from well water polluted by the river. If the river was thus early carrying typhoid germs, these may have found their way into it at any point between its source at Mechanicsville and Cuttingsville.

Once the infection gained an entrance into the valley, the excreta from the succeeding crop did the rest. Each succeeding case added its quota to the infection in the water. Persistent search fails to bring to light the case prior to the first here recorded. Yet our first case was not recognized as typhoid fever by the physician in attendance until it had been sick some time; indeed I am informed by one of the physicians in this case that a doubt still exists in his mind as to that diagnosis. With all the facts of this epidemic in mind, it does not seem possible that any medical man could doubt the true diagnosis in this case. We all recognize, at times, the difficulties surrounding the early diagnosis of this disease. The continued failure, however, to recognize the first case here recorded, as one of probable typhoid, throws possible light on the true explanation of this epidemic. If this case escaped early recognition, we are forced to the conclusion that an earlier one may also have been overlooked.

Other theories suggest themselves to explain the advent of this disease into this valley. Some transient, a "walking case" seen by no doctor may have been here, and again, the waters of Mill River may have received a contribution of typhoid excreta from some railroad train, at one of the railroad bridges over the stream.

I am aware that the problem of finding the cause of this epidemic is unsolved. Yet I feel sure that the facts here presented are not without value to the physician and the sanitarian. As I have remarked, the situation which existed in this little Green Mountain valley, prior to 1905, is in no wise different from that in many other Vermont and New England valleys.

There are many little villages among the New England hills, whose people are using river water or river-fed well and spring waters, and where the importation of a case of typhoid, would mean a miniature epidemic. Such epidemics are miniatures only in comparison with those of larger centers of population.

To the small communities affected, they work the havoc of a veritable pestilence. Excluding those cases in this outbreak that belonged to other towns, there were 17 cases of the disease among the inhabitants of Cuttingsville. The postmaster of that village gives its population as 175. If the city of Scranton, Pa., had suffered proportionately during its recent typhoid outbreak, there would have been some 12,000 cases, or more than ten times the number actually reported.

The practical lessons which may be fairly drawn from this Vermont outbreak are these:

1. Practising physicians should be careful of their diagnosis in febrile cases, whose causes are obscure. Cases of fever, running a week or more in our non-malarial region, are more apt to be typhoid than anything else. "Bilious fever," "gastric fever," "continued fever," "fall fever" and simple "fever" have no place in the modern nomenclature of disease, as they have no pathological status. These names are generally disguises for typhoid fever. Early diagnosis furnishes the key to epidemics—in typhoid fever as in other infections. Early diagnosis here means early precautions—especially early disinfection of the stools. Early diagnosis is possible with Laboratory aid, and this aid is within the reach of every Vermont doctor.

2. Two or more cases of typhoid fever in a small rural village at the same time calls for investigation. Such an investigation should include, (a) drinking water, (b) milk, (c) all articles of food eaten raw, especially oysters. Modern research has busied itself with this disease, and among the truths it has unearthed are these: typhoid fever is not providential; its presence in a community means that the victim has swallowed the bacillus typhosus; that this bacillus has originated in a prior case. It follows logically that typhoid cases have been poisoned by the excreta of other typhoid cases. The story of this Mill River Valley outbreak shows that these other prior cases are not always easy of detection, and that the rehearsal of the above trite logic is not out of place. As observers of disease and as custodians of the public health, we may not forget or ignore our duty in the presence of this well understood infection. If the first case in this epidemic had been promptly and intelligently investigated, it is possible its origin would have been discovered, and further cases prevented. I do not say this is more than a possibility, for I

appreciate the difficulties surrounding such an investigation. Yet the fact remains that we do not regard these happenings in the realm of nature, typhoid outbreaks, as anything unusual or extraordinary—and yet there is not, I believe, a practitioner in the state who is ignorant of the essential natural laws which govern these outbreaks.

We get careless.

3. The villages of this Mill River Valley have probably been in danger of just such an epidemic, as has now visited it, for many years. Like many other peaceful New England villages, it has long been drinking dilute sewage, drawn from innocent appearing wells and springs, whose water may have been as sparkling and satisfying to the palate as is proverbial. The old wells and springs of the valley which are below the water in the river should all be abandoned.

The mountain sides abound in springs whose water is abundant and pure.

Each of these villages should seek such a common supply without delay.

THE OPERATIONS FOR SENILE CATARACT.

COMBINED EXTRACTION *vs.* SIMPLE EXTRACTION.*

By J. H. Woodward, B. S., M. D., New York City.

In discussing the question of choice between the operation of combined extraction and the operation of simple extraction, I may conveniently and practically group the arguments to be presented for your consideration under four (4) general headings, viz.:

1. Considerations pertaining to the technique of the operations.

2. Conditions observed during the period beginning with the completion of the operation and ending with the subsidence of all post-operative irritability.

3. The ultimate results of the operations.

4. The range of their applicability.

I. AS TO TECHNIQUE.

The *simple operation* possesses the following advantages over the combined operation:

- (a). It is more easily performed.
- (b). It is more quickly performed.
- (c). It is less painful.
- (d). It inflicts a lesser traumatism on the eyeball.
- (e). It exposes the eye to a lesser danger of infection, by virtue of the employment of fewer instruments in its execution.

On the other hand the *combined operation* exposes the eye

- (a). To a lesser danger of prolapse of the vitreous.
- (b). To a lesser danger of dislocation of the lens into the vitreous.
- (c). To a lesser danger of revolution of the lens on its horizontal axis.
- (d). To no danger from prolapse of the iris.

In the matter of technique, therefore, each operation presents notable advantages over its rival, and they are to this extent pretty evenly balanced.

Whatever others may think of the importance of *prolapse of the vitreous*, my opinion is fixed that it is an accident to be avoided with every care. For, even though the loss of vitreous may amount to but a drop or two, and even though the wound may heal and the eye be useful again, in the greater number of cases in which vitreous has been lost, the day will come when the baneful effects of that loss will be manifest in depreciation of vision, or actual blindness. I do not contend that there may be no exceptions to this rule; but I do not hesitate to affirm that prolapse of vitreous is a disaster; and that whenever I choose to perform a simple extraction, I am conscious of exposing my patient to the risks of that accident to a greater degree than I would have done by choosing to perform upon him the combined operation.

Nothing can be more admirable than the skillful performance of the simple operation in the simplest way, namely by the agency of a single instrument, the cataract knife. I have heard this operation ridiculed as a "play to the gallery." But actual personal experience in a sufficiently large number of cases has convinced me that great security against prolapse of vitreous is obtained by eliminating the speculum and the fixation forceps. Prompted to the undertaking by observation of the masterly work of Trousseau, some twelve or fourteen years ago, I proceeded immediately to dispense with the speculum and fixation forceps, not

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only in my simple extractions, but also in my combined operations. Thus the two operations were more closely approximated in simplicity, as well as in security from accident through involuntary contractions of the orbicularis and of the recti muscles, in the critical moments of the operation. Practically, therefore, according to my experience since this modification of technique, vitreous is lost only through faulty manipulation in the delivery of the lens. It follows as a corollary, that prolapse of the vitreous is more likely to occur in the simple operation, because the lens is less readily delivered through the round pupil than through the keyhole pupil. Preliminary atropinization does not modify this statement.

Prolapse of iris during simple extraction is not uncommon. The prolapse may be easily reduced, as a rule, leaving a round, central pupil. It may be queried however, whether a large prolapse, although perfectly replaced, is not likely to be succeeded by a secondary prolapse in the early post-operative days. At any rate, it seems to me that that is the fact; and personally, I prefer to excise a large prolapse of the iris at once, rather than persist in a determination to complete a simple operation.

The *combined* operation on the other hand, is much more difficult to perform well than is the *simple* operation, and it consumes a longer time. Both of these considerations may be important, according to the temperament of the surgeon and the peculiarities of the patient.

2. CONDITIONS OBSERVED DURING THE PERIOD BEGINNING WITH THE COMPLETION OF THE OPERATION AND ENDING WITH THE SUBSIDENCE OF ALL POST-OPERATIVE IRRITABILITY.

From the practical standpoint, there is no choice between the operations so far as the healing process is concerned. The chances of infection are intrinsically somewhat greater in combined extraction; but the operations may be equalized, in this respect, by sufficient attention to asepsis. I would not contend that iritis is more likely to occur in the one case than in the other; although it is true that when it does supervene after the simple operation, posterior synechia and occlusion of the pupil are more seriously threatened.

Every surgeon who performs the simple operation often enough will observe a condition that makes the crucial difference between

the two methods of extraction: I refer, of course, to post-operative prolapse of the iris. Sometimes the causes of it are clearly defined; in other instances they are more or less theoretical and uncertain. We may have our fixed ideas on this subject, but often we are not able to demonstrate that they are true. After all is said, the fact remains that no operator is wise enough, no matter how many thousand simple extractions he may have completed, to say with authority that in one case there will be no prolapse of the iris, while in another a prolapse will occur. No method yet devised will insure against occurrence of prolapse of the iris in an important percentage of simple extractions before the healing of the corneal wound can prevent it. Therefore, the contention will hold, that, so far as the prescience of the surgeon goes, the occurrence of prolapse of the iris after simple extraction is more or less a matter of chance.

Before such an audience, it would be superfluous to dwell upon the baneful effects of the accident we are discussing. I suppose it is familiar to every one that the range of those effects may be from a comparatively harmless condition to a state that requires the greatest patience and skill to rescue the eye from total blindness. Its occurrence subjects the patient to one or more operations he was not prepared for; and, after it, the most brilliant ultimate result procured by the most skilled operator is very rarely, if ever, as good as would have been obtained with great certainty by a combined extraction.

3. THE ULTIMATE RESULTS OF THE OPERATIONS.

After either operation, I think a dissection of the capsule should be made as a routine practice. For a certain length of time, in a certain number of cases, satisfactory vision may be obtained without a dissection operation. But I prefer to perform it in practically every case of cataract extraction. This having been done, I may say that, so far as regards function, I have not been able to detect any essential difference between the results obtained by the two methods, either for distance seeing or for reading and writing. But, so far as regards the physical appearance of the operated eye, there is a wide difference between the effects of the two methods. The operation coloboma resulting from the iridectomy is dis-

figuring. The appearance of the eye after a successful simple extraction, however, leaves nothing to be desired; the cosmetic result is admirable. And I must confess that this argument in favor of simple extraction appeals to me very strongly. There are cases in which to obtain such perfection it were well worth while to take large risks. But, excepting in a limited number of special cases, yielding to such temptation is done not really in behalf of the true interests of the patient, but as a sacrifice to the enthusiasm of the operating surgeon.

4. THE RANGE OF APPLICABILITY OF THE OPERATIONS.

Up to this point in the argument, you may consider that we have been assuming that the case to be operated upon was a mature senile cataract, in every particular suitable for an extraction operation of one sort, or the other. Let us turn now to a brief examination of cases presenting other characteristics; and I shall refer only to cases of immature and hypermature uncomplicated senile cataract, for the time allotted me is too limited to permit any excursion into the field of traumatic, pathologic, or complicated cataract.

The fundamental question that arises at this point is, at what stage of the development of senile cataract shall the extraction be performed? Must we wait until the cataract is mature before operating, or shall we operate when function is so far impaired that the patient is not able to go about alone, or to read or sew?

If we decide to wait until the maturity of the cataract is demonstrable, we shall frequently compel the patient to submit to months or years of helpless waiting, with all the attendant psychical and physical evil effects. I contend that such a decision is a condemnation both cruel and unjustifiable, destructive of the happiness of the victim and jeopardizing to his mental and physical well-being. And the moment when, years ago, I became conscience of the truth of these things, I began to operate upon cataracts before they were mature, as soon as the visual function had been sufficiently obscured to prevent the patient either from going about alone, or from reading or sewing. The only regret I have in this regard is that I did not begin the practice earlier. This

manner of proceeding opens up a large field to which the simple method of extraction is not well adapted. It is not well adapted to the extraction of immature senile cataract, because, notwithstanding our assiduous efforts, we shall often fail to remove all of the cortex from the posterior chamber. The debris will swell under the action of the aqueous, and thus promote a prolapse of the iris or precipitate an attack of iritis. In this regard, like the pilot who knew the harbor because he had run a ship upon every sunken rock within its confines, I feel that I may speak as one who has had an enlightening experience. On the other hand, combined extraction is a satisfactory operation in this class of cases, and it may be safely performed without resort to any preliminary interference for ripening the cataract.

Finally, I would put one other restriction upon the applicability of the simple operation, and reject it whenever we are dealing with a hypermature senile cataract. The cortex of such lenses, as you know, is oftentimes as tenacious as glue, and after the delivery there remains in the posterior chamber a quantity of sticky debris that is removed with the greatest difficulty, even under the most favorable conditions. In other cases, the debris does not present such sticky properties, but it is also difficult to remove. In either case, it is very hazardous to leave any such substances in the posterior chamber, for they seem to possess extraordinary irritating properties. Massage, spooning and irrigation of the posterior chamber through the round pupil do not offer to my mind, a sufficient guarantee against disaster from such cortical remains. I look upon these cataracts as the most difficult to bring to a happy ending of all that I have had occasion to operate upon; and I am convinced that they are not at all suitable for the simple operation.

58 West 40th St.

Chemical and microscopic examinations of the urine should be made at least once a month during the earlier months, and not less than once weekly during the last three months of pregnancy. Close observation and regulation of the function of the kidneys during gestation are of great importance.—*Therapeutic Gazette*.

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EDITORIAL.

It is usually comparatively easy to trace to its source any general outbreak of typhoid fever. The presumption in such cases is naturally that the disease is spread by some article of general use which is obtained by a large number of people from a common source and of course water answers this description better than anything else, but the demonstration of the common carrier of an epidemic only forces the problem back a little further. The greatest difficulty is usually explaining the first case. This may be found to have been brought by a returning visitor from some community where typhoid has been raging, but often the original case admits of no such solution. There may be no history of having been away from home. We believe that the railways account for many of these cases. The average travel over every mile of American

railway is large. The railway closets are simply hoppers emptying their contents directly on to the track. The fecal discharges of most, and the urine of 25% of typhoid convalescents contain typhoid bacilli for a considerable time. With these three propositions we can explain a large proportion of these sporadic cases. It is easy to explain the entrance of this dejecta into water courses washed down by showers. Then again the common house fly is admirably fitted to transmit the bacteria from these infected discharges to the food of near-by families. One only need to allow a fly to walk across the surface of a plate of sterile agar to demonstrate the probability of this method of transmission in many cases. Most of the subsequent cases are usually due to water or milk infected by the discharges from the first case. Any considerable outbreak involving a number of individuals and occurring at the same time can safely be attributed to one of the latter sources.

The prevention of this danger from railway closets would seem to be a simple matter, involving comparatively little expense to the companies and it would be clearly consistent with modern sanitation to require such provisions.

A legal case of more than ordinary importance is now being tried in this state. A young lady visited the office of the respondent, a physician, by appointment for some purpose which is in dispute. The physician undertook according to his testimony, to make a vaginal examination by the use of the speculum with almost instantaneous fatal results. The physician is being tried for criminal abortion. It is probably wiser to abstain from comment regarding the guilt or innocence of the man until the jury have rendered a verdict, but the case clearly carries with it a warning. The physician who makes an examination of a female in his office

however trivial it may seem, without the presence of a third party is putting himself in a dangerous position. These cases of sudden death are continually occurring under such circumstances and undoubtedly the reputation of some innocent men have been clouded by such an occurrence. There seems to be no way of anticipating such a result and it may come with a patient in every way healthy and is sure to come when least expected. The physician who continually puts himself in this dangerous position may consider himself fortunate indeed if he escapes embarrassing consequences at some time.

That the treatment of typhoid has not changed materially in twenty-five years is almost as much of a reproach on our therapeutics as the existence of the disease is a disgrace to our sanitation. That a disease as old as history should have no more efficient treatment than when first known is strange but essentially true. We have as yet no specific for the disease. Such improvement in the management of the disease must be sought in the new domain of serum therapy. Vaccination has been successfully developed as a prophylactic measure and is meeting with a degree of success which proves the correctness of its basis. It only remains to perfect in some way an antitoxin which will be effective against the intracellular toxins liberated in the body and producing the constitutional effect. Since the demonstration of the nature of the disease as a septicemia, the rational basis for intestinal antiseptics has been weakened, but this will undoubtedly be a valuable adjunct to any antitoxin medication as it will help prevent the formation of ptomaines and thus aid in the preservation of the integrity of the intestinal wall.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. O. H. Allard of Burlington died April 15 at the Fanny Allen Hospital after a short illness. Dr. Allard was a native of St. Henri, Que., and was a graduate of Laval University in Montreal. He had been in Burlington for about ten years and previously practised seven years in Winooski.

Dr. George Nichols, formerly Secretary of the State of Vermont and for several years a member of the Republican National Committee, died at Northfield, April 28, at the age of 80 years. He was graduated from the Vermont Medical College at Woodstock and served in the Civil War as surgeon of the 13th Vermont Volunteers. In 1865 he was appointed secretary of state by Gov. Smith and later he was for many years state librarian.

An epidemic of smallpox broke out in the village of West Berlin last month in which over 30 cases appeared. A dozen houses were quarantined, schools and churches were closed and trains were forbidden to make stops at the station. Dr. H. D. Holton, secretary of the State Board of Health took personal charge of the quarantine, and the epidemic was soon under control. The cases were all of mild character and no deaths were reported.

Dr. George F. Gale, 79 years of age died at his home in Brattleboro, April 15. Dr. Gale was born in Petersham, Mass., May 19, 1827, and graduated from the Berkeley Medical College in the class of 1855, and at about that time was at the head of a smallpox hospital in San Francisco. He settled in Brattleboro in 1858 and has been there ever since with the exception of a short time spent as surgeon with the 8th Vermont Regiment in the Civil War.

At a meeting of the State Board of Tuberculosis Commissioners held in Burlington, April 19, the board made arrangements for occupying two sessions of the coming State Health Officers' School with papers on tuberculosis. There will be two papers by authorities on tuberculosis from without the State and two by authorities within the State. Probably one of the latter papers will be presented by

some member of the tuberculosis board and the other by a health officer. All of the papers will be followed by discussions. The board also considered the advisability of holding some summer agitation meetings during the months of May and June in Franklin, Essex and Orleans Counties.

Physicians who have occasion to practice at Fort Ethan Allen will be interested in the following order which has been issued from the war department.—“A civilian physician desiring to practice medicine on a military reservation must register his name with the post commander and must agree in writing to observe the rules and regulations relative to the protection of the command against infectious or epidemic diseases that may be in force at that time or that may be promulgated thereafter. Whenever a civilian physician in his practice on a military reservation discovers a case of infectious or epidemic disease he must make prompt report thereof to the post commander, who will take the proper steps for the protection of both civilian and military residents on the reservation.”

The following recommendations have been made by the Health Commissioners of Burlington to the city council:—That the drugs and medicines for the city poor be purchased on prescription given by the health officer or city physician. These prescriptions are not to be sent to one druggist only. There is to be no discrimination, but all are to have a fair share of the order. Prescriptions must be in the form of an order with carbon copy. Such blanks to be furnished by the health board. These carbon copies are to be returned to the health committee or overseer of the poor on or before the fifth (5th) of the following month for comparison with all bills. Said bills must always bear the number of the order and the name of the person ordering the same. Antitoxin and supplies for fumigation will be purchased in quantities by the board of health.

Active measures have been instituted by the Burlington and Chittenden County Clinical Society, looking toward the testing and examination of the milk furnished by Burlington dealers. At the regular meeting of the Society, April 25, Dr. G. R. Pisek of New York, professor of pediatrics in the College of Medicine gave an address on the “Establishment and Value of a Milk Commission for the City of

Burlington.” To this meeting were invited members of the Commercial Club, dairymen and all others interested in a pure milk supply. Definite action was taken by empowering the president, Dr. Lyman Allen, to appoint six physicians who should constitute a milk commission, meet regularly with the dairymen and draft rules regarding cleanliness in the production and selling of milk. Dr. Allen has appointed the following: Drs. H. R. Watkins, F. E. Clark, L. P. Sprague, C. H. Beecher, P. E. McSweeney, and F. A. Rich, and Dr. Sprague has also been appointed milk inspector for the city by the health commissioners.

MAINE.

A city hospital association has been formed at Bath for the purpose of raising a fund to build a hospital in that city. The sum of \$5,000 was left by the will of the late Miss Lucinda Bailey for such a purpose and further funds are to be raised by subscription and donations.

NEW YORK.

Dr. W. H. Clancy who has been house physician in a sanitarium at Gabriels has gone to Glens Falls, N. Y., where he has opened an office.

Announcement is made of the approaching marriage of Maud, the youngest daughter of Mr. and Mrs. A. C. Morse, of Burke, and Dr. Sidney Mitchell, Jr., of Saranac.

CANADA.

McGill University at Montreal has been again maimed by fire. The medical building, one of the oldest and finest structures on the college ground was practically destroyed April 16. The college equipment and the museum, which was one of the most complete on this continent, were totally consumed. The loss on the museum cannot be considered in money value, as it had been collecting for nearly three-quarters of a century and contained many absolutely priceless specimens. The magnificent medical library, however, was saved, and this is no small comfort to the university authorities as it contained many works as valuable in their way as the collection in the museum.

CLINICAL ADVANTAGES IN BURLINGTON

There seems to be an idea more or less general among physicians that the clinical advan-

tages of Burlington are so meager that it is desirable for students of medicine to finish their medical education in some large city where they can see more clinical work. In order to correct this erroneous impression I would like to give the actual clinical work that has been done at the University of Vermont College of Medicine for the month of April, which gives a fair idea of the regular clinical work for each month of the session.

It is true that the clinical work available in Burlington has not always been what could be wished, but for some years the clinical possibilities have been developed and the clinical work now available in Burlington is ample for satisfactory clinical teaching, and no student needs to look elsewhere for a medical education on this account.

It is still a question how much time should be spent during the last year of a four year medical course in clinical work. One thing is certain, it is not advantageous for a student to see more clinical cases than he can carefully examine and carefully study.

There have been eight clinics each week, during the month of April, as follows:

Tuesday morning, Medicine.

Tuesday afternoon, Eye, Ear, Nose and Throat.

Wednesday morning, General Surgery.

Wednesday afternoon, Nervous Diseases or Diseases of the Skin.

Thursday morning, Medicine.

Thursday afternoon, Gynaecology.

Friday afternoon, Eye Ear, Nose and Throat.

Saturday morning, General Surgery.

These clinics are each for two hours, and the students examine the patients, make their diagnosis, and suggest treatment.

There have been more than one-hundred and twenty-five (125) patients at these various clinics during the month.

These cases have demonstrated a wide range of diseases of the skin, nervous and mental diseases, diseases of women, diseases of the eye, ear, nose and throat, including many operations, diseases of the heart, lungs, pleura, diseases of the stomach, intestines, liver and pancreas, diseases of the genito-urinary tract, including many cases of genito-urinary surgery, and a wide range of general and special surgery.

Burlington is becoming an important medical and surgical center and the clinical facilities are exceedingly good, and improving each year.

H. C. TINKHAM,
Dean University of Vermont
College of Medicine.

BOOK REVIEWS.

THE DISEASES OF THE NOSE, THROAT, AND EAR—By Charles Prevost Grayson, A. M., M. D., Clinical Professor of Laryngology in the Medical Department of the University of Pennsylvania; Physician-in-Charge of the Department for Diseases of the Nose and Throat in the Hospital of the University of Pennsylvania; Laryngologist and Othologist to the Philadelphia Hospital. Second edition, revised and enlarged. Lea Brothers & Co., Philadelphia, and New York.

The author has succeeded admirably in producing a treatise that is clear, to the point, and withal sufficiently explicit. The illustrations are clear, and the description of parts and technique is especially good. It must prove a very useful book for students and practitioners.

THE PRACTITIONER'S VISITING LIST. Lea Brothers & Co., Philadelphia and New York.

Unfortunately most physicians give so much of their time to the care of their patients that they have little left to devote to the important matter of book-keeping, and any system of keeping physician's accounts that is simple, easy to keep, and at the same time complete, must appeal to the busy practitioner. This book certainly meets all these conditions.

DISEASES OF CHILDREN.—A manual for Students and Practitioners by George M. Tuttle, M. D., attending Physician to St. Luke's Hospital, Martha Parson's Hospital for Children, Bethesda Foundling Asylum, and Professor of Therapeutics Department of Washington University, St. Louis. Second edition. Lea Brothers & Co., Philadelphia and New York. 392 pages.

This is one of the "Series of Pocket Text-Books" and is especially adapted to the student beginning the study of Diseases of Children, or the busy practitioner who wishes concise but accurate information on this subject. It is a reliable and readable condensation of literature on diseases of children.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

TYPHOID FEVER.

TREATMENT OF TYPHOID.

Since typhoid fever is practically ubiquitous and may be seen at almost any time, a discussion pertaining to treatment may not be inopportune. Notwithstanding this, the writer had not intended to add to or reiterate what had been previously written. The method of treatment as briefly suggested in THE MEDICAL RECORD, though an old story to many, to others it seems to appear not only new but unusual and astonishing. First, let it be understood that what was stated as fact in the article above referred to has to my mind been proven true in my personal experience. It is especially of the sulphocarbolates as intestinal antiseptics that reference is had. Notwithstanding these salts have proven most satisfactory in my own personal experience, I do not deny the possibility of the existence of any other competent intestinal antiseptic. The intestinal antiseptic method by the use of sulphocarbolates, especially, has a large and enthusiastic support and the greater number of advocates of intestinal antiseptics prefer these salts. Sometimes it is impossible, from our viewpoint, to get a proper focus, consequently, to those who have uttered the opinion of the impossibility of disinfecting the intestinal tract, or rather the impossibility of obtaining and maintaining an absolutely aseptic condition of the gastrointestinal canal, I must say that this matter has been answered adequately time and again and that this "ghost" has never been proven material, but is still a "ghost" that will bob up occasionally even yet. So let us understand that very probably indeed the primæ viæ cannot be rendered positively aseptic. It is also a fact that the external surfaces, and even the hands of the surgeons, cannot be absolutely asepticized, we are told, and that, if it were possible, it could not be maintained the fractional part of a moment. Nevertheless, the surgeon does not abandon, or even lessen, his efforts to obtain and maintain that degree of asepsis which is possible. And though not absolute, it is none the less desirable and adequate to saving life. Witness the triumphs of antiseptic surgery even in its infancy. The mortality following major operations in 1864-1866 statistics placed at 45 per cent. Immediately following the introduction of the antiseptic method by Dr. Joseph Lister, in 1867, while still in its infancy, crude and undeveloped, the rate of mortality dropped to 15 per cent. See what that meant—thirty more lives saved in each hundred, and, too, before anything like a perfect technic or mature method was thought of. That renowned surgeon of Halle, Volkmann, was so discouraged on account of the prevalence and virulence of pyæmia and septicæmia with their disastrous and astounding mortality, that he seriously considered the advisability of closing his wards, and really was about to do so, but, as a last resort, instead of denying the possibilities of the method of Lister, he gave it a trial and thereby reduced the mortality to not exceeding 6 per cent, and yet perfect asepsis was not even approximated; we are told it was in no wise ideal. And so it is believed by the supporters of intestinal antiseptics that, while perfect asepsis may be impossible, relative asepsis can be obtained and maintained which is compatible with recuperation and recovery, analogous to that existing in health and essential to its preservation and the proper maintenance of somatic physiology. And while the body may be in a state of perfect health, the contents of the

primæ viæ are not probably absolutely aseptic, yet we may not unreasonably designate such a condition the normally aseptic condition of the alimentary canal. Call the condition what we may, or be it what it may, there is a condition compatible with health that may be termed normal. And if the intestinal antiseptics sounds so impossible as to preclude an effort in this direction, let us think of it as intestinal normalization and use the sulphocarbolates to bring about a condition of the contents of the tractus intestinalis approximating the normal. Surely there can be no objection to this, and so it will be understood that practicing intestinal antiseptics means the administration of remedies to bring about that condition of the primæ viæ found in health or relatively so, or as nearly as possible. This may seem a superfluous attempt at elucidation to some, but we have reason to know that the term intestinal antiseptics, as used by its advocates, is not correctly understood by some, who seem to stand as though paralyzed by its overwhelming impossibility as they seem to view it. Another question to be answered in this connection is, how the sulphocarbolates act, etc. It has not been claimed that we know positively how they act, though it is supposed they not only do not promote bacterial growth in the intestines, but render the breeding ground uncongenial, etc., preventing their development, and probably also act in the circulation as system depoisoners. However, intestinal antiseptics does not depend on any theory or hypothesis for its employment, but on absolute demonstrated clinical fact, and whether ever explained or even explainable does not lessen its importance nor usefulness. That it is a demonstrable fact any one can prove who will supply himself with c. p. sulphocarbolates and make the test. That none may have a duplication of the writer's experience, let him be sure of providing himself with the c. p. salts, otherwise they may not report very favorably of the sulphocarbolates. Two years' experience with impure soda and zinc salts, which caused nausea and other disturbances so great as to preclude their use or necessitate their discontinuance was not reassuring, but I concluded to investigate, feeling that there must be very material reason for the great difference in effect reported by others, which was so pleasant, prompt and effective, and the negative and undesirable seen in our personal experience. Briefly, an order for c. p. sulphocarbolates brought a more elegantly appearing salt than what I had seen and used previously, and the action was uniformly pleasant, prompt and effective, which you may be assured was a revelation to the writer, a most pleasant surprise. There may be as good or better methods of treating typhoid fever, but it is not the do-nothing one, according to my experience. Suppressing the feces and the therapeutic fast may be valuable, but I have no experience of consequence. To diet a patient in general practice has usually proven practically impossible, and I would apprehend great difficulty in maintaining absolute fast, since it has been my experience that rarely have we been able to get patients to fast twenty-four or thirty-six hours—the friends or relatives will feed, even clandestinely, consequently it has seemed more feasible and safer to rely on the sulphocarbolates to prevent a vitiated prima via and toxæmia and increase leucocytosis by the use of nuclein, and thus improve phagocytic activity, thereby sustaining and improving somatic competency, than to attempt a fast and depend on the system being able to recover if no more work is given it through food not properly digested, and all difficulties incident thereto, which may not be a verifiable hypothesis. It is not impossible, but highly probable and reasonable, to pre-

sume that in a healthy body, with every organ perfectly and correctly functioning and every apparatus in physiological harmony foreign invasion would scarcely be probable if at all possible, and disease could not become established. Since tissue resistance plays so important a part in immunity, is it to be wondered at that the administration of nuclein strengthens the defensive proteids competent to hinder and limit disease? That preventing further autoxæmia, and by the use of c. p. sulphocarbolates as intestinal disinfectants and rendering competent phagocytic ability, brings about an early convalescence and unhesitating recovery is a clinical fact to which many of the most capable therapeutists have testified. When the gastro-intestinal tract has been disinfected, bacterial multiplication and maturation seem hindered and reinforcement prevented when by the administration of nuclein leucocytosis may be augmented as needed to promptly and completely overthrow bacteria, which may be in the system at the time, when the further use of nuclein will aid in repair and recuperation and a more early and satisfactory recovery.—*J. R. Landers, in Ill. Med. Bulletin.*

THE TYPHOID STATE.

The above subject was suggested to me, on account of the misunderstanding or different interpretations of the term typhoid, when used as a prefix or suffix to the name of a certain disease, as, for example, the typhoid pneumonia. Many professional people use this as a definition for typhoid fever complicated with pneumonia or pneumonia complicated with typhoid fever. Such definition is not in accordance with the best authorities. Typhoid pneumonia is described by them as pneumonia complicated with the typhoid state. The nomenclature is no doubt faulty and confusing, but is so used by the best authors and writers. The term, typhoid, then embraces two very different meanings. First, it is used to designate a specific fever, namely, typhoid fever, familiar to all; and second, a certain condition of the muscular and nervous systems, manifested in various diseases, in typhoid fever as well as in other diseases; but is entitled to rank as a complication of typhoid fever as much as of pneumonia and scarlet fever. We see it as a complication of typhoid fever most frequently, for the simple reason that typhoid fever is the most common disease in our climate, possessing the requisites for the production of the condition. It is said, however, to be observed more frequently in typhus fever and cholera. This typhoid state, or typhoid condition, Dorland defines as a condition of great muscular weakness and stupor, with a dry tongue, sordes on the teeth, muttering delirium, feeble pulse, involuntary discharge of feces and urine seen in certain wasting diseases as typhoid and other fevers.

A certain author describes it as an ataxy, a disturbance, a confusion. Its phenomena are muttering delirium, hallucinations, coma vigil, typhomania, deafness, picking at the bed clothes and body linen, incoordinate voluntary movements, difficulty in swallowing, changed or inaudible voice, the dropped jaw, the tremulous tongue, sinking down or sliding down in bed, vomiting, diarrhea, tympanites, and the relaxation of the sphincters. The presence of few or many of these symptoms declares the presence of the typhoid state; and they are presented in connection with the symptoms of the disease which it complicates. And it may be present in any disease where there is a special poison capable of producing the

state, or a disease lasting long enough to produce heart exhaustion or brain exhaustion or both.

These, then, are the causative factors which seem to produce the condition: a toxæmia belonging to the disease which it complicates, brain exhaustion and heart exhaustion. When the typhoid state is due to the special poison of the disease which it complicates, its symptoms will generally be manifested early in the disease. Not infrequently, we are called to a case where the typhoid state is present with many of its symptoms, and we are perhaps unable to diagnose for the present what disease is producing the toxæmia.

When due to heart exhaustion or brain exhaustion, it will be a complication late in the disease, and where you have heart exhaustion you will nearly always have brain exhaustion. Acute disease is probably incapable of producing heart exhaustion and not damaging the brain, or exhausting the nervous system and leaving the heart intact. High temperature has been regarded as a causative factor by some, but I think it cannot be regarded as an etiological factor, except that it may be an element in the production of heart exhaustion or brain exhaustion. It may be regarded as an accompaniment, rather than a cause. We see cases frequently where high temperatures persist many days and no evidence of the typhoid state appears. Again, we see diseases with a very moderate elevation of temperature, and the typhoid condition present with all of its manifestations. It is said that the typhoid state frequently precedes death from starvation; nerve and heart exhaustion being produced by simple lack of nutrition.

The prognosis of a disease where the typhoid state is developed depends upon different factors. First, it is governed by what disease it complicates. In typhoid fever many cases make a good recovery. In pneumonia, where the condition is developed in all its intensity, practically none recover. In diphtheria and scarlet fever, the prognosis is not so good as in typhoid fever. Again it is governed by whether it develops early or late in the disease; if early, then it is due to the absorption of the poison of that particular disease, and the outcome will depend upon the virulence of the poison and the resistance of the patient to the toxæmia. And it is a well known fact that a tolerance is established as the disease progresses and the system has a natural tendency to eliminate the poison. Thus, as the days go by, the chances for recovery grow brighter. If the condition arises late in the disease, due to brain and heart exhaustion, then we know that the disease has all but spent its force, and the cause which caused the complication will soon no longer be a factor to be contended with, and the longer we can keep the patient living, as in the preceding condition, the better the prognosis becomes. And, again, the prognosis is dependent upon the character and number of the symptoms; that is, upon the intensity of the condition. The gravest of these is growing stupor, vomiting, diarrhea and tympanites. Next in order of gravity, may be mentioned the extreme muscular exhaustion indicated by the falling of the jaw, inability to move a limb and sliding down in bed. Relaxation of the sphincters, the tremulous tongue, and carphologia are common in many cases which recover. The same may be said of typhomania and coma vigil, but possibly to a less extent.

The treatment of disease seems to change somewhat by fashion or impulse. Many professional people continue experimenting with each new remedy as it appears on the market. Here in the west the X-ray is used by some at present as a panacea for most of the ills to which the human flesh is heir.

In the east this cure-all propensity of the X-ray died some years ago. Oliver Wendell Holmes has said that if all the medicines were thrown into the sea it would be better for the people but bad for fishes. And I believe that if about one-half of the remedies now urged upon the profession were discarded, it would be better for the doctor and his patient. Scientific research is well and good, but the experimenting with the multiplicity of new remedies, foisted upon the market by enterprising manufactures, is not scientific research. And I have often observed, when a grave condition assails our patient, when it is a matter of life and death, discarding modern discoveries, we go back to the remedies whose physiological effects are well known and have been in common use many, many years.

When the typhoid state develops in any disease the treatment of the disease which it complicates becomes a matter of little importance. The treatment is directed at once to the typhoid state; and outside of hygienic and dietetic measures we have few drugs which are useful in this condition, and they are old and tried. I have said that heart exhaustion and brain exhaustion go hand in hand, but from the course of the disease its symptoms, events, and devastations, indications come which designate which has been most potent to produce the condition. If this is heart exhaustion, then stimulation by alcohol is certainly of the highest importance. Alcohol, that indirect food, which limits waste, gives new energy to an exhausted heart and may bridge over a disease which has all but spent its force. If it is brain exhaustion, its symptoms do not come on suddenly or without warning to the watchful observers. A growing unsteadiness of the nervous system, and the abolition of sleep, may be mentioned as precursors of the typhoid condition from this cause. In such condition, we have but one remedy upon which we can pin our faith—opium. Many are the remedies reputed to take the place of opium, but, generally, in emergencies have been tried and found wanting. When so dangerous a condition assails our patient, why not use a remedy whose effects are known and sure? Of course, opium is not applicable to many conditions in the typhoid state; its administration, particularly in pneumonia, will but favor the growing tendency to coma, which, in the typhoid state, is synonymous with death. On the other hand, in certain cases, its exhibition will save life. When the condition is due to the direct action of the infectious poison of the disease which it complicates, our treatment is to facilitate all excretion that may be done safely: The production of catharsis and the maintaining of a hyper-activity of the skin, and every measure which will prolong life, with the assurance that with each hour our patient lives there is a growing tolerance of the poison and a lessening of its activity and virulence. Such, in short, is a description of the symptoms, causes, prognosis and treatment of a condition known among authors as the typhoid state.—*T. B. Gormly in Denver Med. Times.*

TYPHOID.

L. NAPOLEON BOSTON (*Medical Record*, Mar., '07) reports this case. The patient was a German woman, twenty-five years old, who was admitted to the hospital suffering with typhoid fever. Lobar pneumonia developed, and the lung conditions progressed from bad to worse. Symptoms of uremia showed themselves; and the patient died in about two weeks after her entrance to the hospital. At post mortem, the pathological diagnosis was made of typhoid fever, pulmonary infiltration with atelectasis, parenchymatous nephritis with infectious emboli of the kidneys,

parenchymatous degeneration of the liver, and acute splenic enlargement. The writer believes that multiple abscesses of the kidney as a complication of typhoid fever must be rather unusual.

RELAPSES IN TYPHOID.

KOPLIK and HEIMAN (*Archives of Pediatrics*) reach the following conclusions from a study of relapses in typhoid fever in children. Relapses in typhoid fever are more common in children than in adults—about 15 per cent. in the former. The mortality is exceedingly low. The usual duration of a relapse in a child is from one to two weeks. As a rule the temperature is continuously high between a rapid rise at the onset and a rapid fall to normal at the termination of the relapse. A constant symptom in addition to the prolonged temperature elevation is enlargement of the spleen; roseola is present in about 75 per cent., leukopenia in about 60 per cent., and mild abdominal symptoms in about 50 per cent. of relapses in children. Complications in these cases are mild and infrequent. For the prediction of a relapse no reliable signs are furnished by the character of the interpyrexial period nor by the course, duration and severity of the original attack. Persistent enlargement of the spleen after defervescence occurs in a fair proportion of relapse cases; and a relapse following a mild primary illness is not as likely to be repeated as one occurring after a severe original attack.

EARLY DIAGNOSIS OF TYPHOID FEVER.

H. CONRADT, of Neuenkirchen (*Muench med. Woch.*, Dec. 4, 1906), discusses the various methods for the early diagnosis of typhoid fever, calling particular attention to the great advantage of the new bile medium as a diagnostic aid. Conradt has shown that in the blood of the typhoid patient, taken for the purposes of the Widal-Gruber reaction, the bacillus of typhoid may be found by means of the bile culture medium. The usual mode of procedure is as follows: One makes use of the ordinary capillary tubes used for the Widal agglutination test. These usually contain about .05 to 0.2 Cc. of blood coagulum and serum. The thread of coagulum is removed from the capillary tube and put in the bile medium. This consists of oxbile, to which 10 per cent. of peptone and 10 per cent. of glycerin have been added, the tube being sterilized two hours in a steam sterilizer. To loosen up the coagulum, it remains in the bile medium for from twelve to sixteen hours at a temperature of 37° C. After this 0.1 to 1 Cc. of the fluid is inoculated on a litmus, milk-sugar, agar plate, and examined for colonies in the ordinary manner. As a result, in 60 patients investigated, about 40 per cent. of the cases proved positive in the first week of the disease. In 24 of the 60, 21 showed typhoid organisms, and 3 paratyphoid bacilli. Conradt believes that he is justified in saying from the material to hand that the bile cultures of slightly coagulated blood are capable of affording a diagnosis in the early weeks of typhoid in at least 50 per cent. of cases. If one should use larger quantities of blood than those usually supplied by the Widal test, it is fair to infer that a higher percentage of success would be recorded.

TYPHOID FEVER EPIDEMIC.

A typhoid fever epidemic has been well characterized as a crime of the municipality against the individual. And this is in large measure a just statement. For these epidemics are usually caused by polluted water supplies, which are in turn the outcome of official carelessness, incompetence or corrup-

tion. It has been so in a most frightful manner in Ithaca and in Philadelphia; it has recently been so in Scranton; and other cities, such as Pittsburg, have naturally been fearing lest they be attacked in turn. The Scranton experience has been fairly typical of those which American cities have from time to time had to undergo. Even today we will find those among the pious who will call them "visitations of Providence." We don't think nearly so hard of Providence as all that. Providence has nothing to do with these; they are caused entirely by a specific germ plus the political agencies above mentioned. The fever had invaded Scranton for nearly a month before any real effort was made to learn the source of the infection; and even the work of purification was done, not by the local authorities, but by the State Board of Health. The water supply was suspected from the beginning; but this supply was the property of a private corporation with considerable local power. So, naturally (at least that is the natural way in American communities), there was some delicacy about fixing the responsibility, and some timidity also, in view of the warning by the company that people had best be careful how they made charges that they couldn't prove. There are two reservoirs, one of which, containing the suspected water, was shut off; drawing from the other, however, did not stop the epidemic, the reason being, as was discovered later, that there was a frequent flow of water between the two, and that their contents were therefore much alike. The State officials found the bacillus in this water. Then after a thousand cases had developed, with seventy-five deaths, the authorities set about doing something. The inhabitants were directed to let each faucet run off its water for ten minutes before using it, so that detritus in the pipes might be removed; all water used for domestic purposes was to be boiled; there was a general, eleventh-hour cleaning up of the city—and a very badly needed one, indeed, so much so that some residents coming home after the health employees had been at work, found it difficult to recognize their own property. The money loss from these epidemics has been enormous; and we heartily endorse the advice to the head of every family which has suffered to bring damage suits against their municipalities, and to pursue these suits to the bitter end: "Sooner or later the adequacy of the cause of action will be judicially recognized, and then it will be realized that belated activity such as that of Scranton now cannot win forgiveness for gross carelessness of human life," declares our lay namesake.

Typhoid epidemics are almost invariably due to the neglect of essential and really quite simple precautions. The germ either from the vomit or the excreta of a typhoid sufferer is taken into the alimentary canal of the victim, who thus becomes infected. Care of drainage, the boiling of drinking water and of milk are essential whenever the disease is feared. Of course every community should at all times, epidemic or no epidemic, have pure drinking water. Oyster beds should have official supervision. The patient should have individual utensils. There should be scientific disinfection of the hands of attendants, vessels, bed-clothing, feces, urine and sputum. Only by such means as these may a typhoid epidemic be averted.—*Med. Times*, Feb., '07.

THE TOXEMIA OF PREGNANCY.

The toxemia inducing the pernicious vomiting and the parenchymatous liver degeneration in pregnancy forms the subject of an article by W. M.

Jordan, Birmingham, Ala., in *The Journal A. M. A.*, April 27, the toxemia of eclampsia being only incidentally noticed, as it differs widely in its symptoms, pathology and prognosis from the above. While it is generally conceded that there is a toxin in the blood that is responsible for the morbid changes in the liver, little or nothing is known as to its nature or source; the liver changes themselves are similar to those that may occur under other toxic conditions, the differences being mainly in degree rather than in kind. They are probably induced through the abolition or impairment of the upbuilding functions of the liver cells, the formula being insufficient liver and toxemia on the one hand, resulting in failure of the anabolic function, and autolysis on the other. The widespread destruction of liver cells does not ordinarily occur, as indicated by clinical symptoms, until after the uterus is emptied, the rapid breakdown then being due, Jordan thinks, to the extra task imposed on the already impaired liver by the excess of waste products from uterine involution. From a careful analysis of published reports of these cases, it would appear that the necrotic process in the liver attacks by preference the central and mid-zonal areas, though other parts may also be affected. Vomiting is a prominent symptom, and when occurring in the early months it dominates the picture so as to give a clinical type known as pernicious vomiting of pregnancy. It may then be confused with the benign type due to reflex or neurotic influences, but in the later months its significance is not so likely to be overlooked. Headache and other neuralgic pains are also common and epigastric pain, probably due to liver changes, is especially significant. Increase of salivary secretion is an important symptom in many bad cases. Air hunger, mental depression and edema are toxic symptoms preceding the destructive processes in the liver. Those due to destruction of liver cells are coma and stupor, black vomit, bile in the urine, possibly icterus, convulsions (occasionally), failure of renal function and failure of circulation. Death usually follows these, though recovery may occur. The diagnosis rests mainly on the clinical symptoms, though an increased percentage of ammonia in the urine has been considered significant. Jordan considers palliative measures useless, and that radical removal of the cause without reference to the interests of the fetus the only alternative. Emptying of the uterus is as imperative as is operation in a case of recognized ectopic pregnancy before rupture. On account of the possible unfavorable effect of anesthesia the non-operative induction of abortion is preferable, other things being equal. In case of extreme urgency any obstetric operation that seems called for may of course be employed. Chloroform should never be used, and on account of the danger of general anesthesia Jordan suggests the use of spinal anesthesia as worthy of favorable consideration. Nine cases are briefly reported.

STUBBORN CASES OF RHEUMATISM.—Many stubborn cases of rheumatism respond rapidly to the influence of "Tongaline." This product, representing the highest degree of pharmaceutical skill, contains the salicylates in an unusually potent form, inasmuch as they are not obtained by synthesis but are extracted from the purest oil of wintergreen. In addition to their potency as anti-rheumatics they possess an additional advantage in not deranging the most sensitive stomach. Physicians who appreciate the progress of honest pharmacy will find in "Tongaline" a product worthy of their highest commendation and confidence.

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THERAPEUTIC NOTES.

A RECENT AND PLAUSIBLE THEORY ascribes rheumatism:—"To toxins formed in the alimentary canal as the result of disordered digestive functions, producing disturbances in metabolism and alteration in the tissues. The body suffering these effects of auto-intoxication has its vital resistance lowered and is therefore subject to microbic invasion." Tongaline from the character of its composition has an anti-toxic effect on these microbes and by its stimulating action on the liver, the bowels, the kidneys and the pores, it eliminates promptly and thoroughly the poisonous germs which are the cause of rheumatism neuralgia, grippe, gout, nervous headache, sciatica, lumbago, tonsillitis and heavy colds.

THE MANAGEMENT OF CONVALESCENCE.—In convalescence from acute diseases, such as pneumonia, typhoid fever, acute articular rheumatism, etc., we are face to face with the problem of restoring the weakened organism to its normal condition. *The blood shows a state of secondary anemia*, the nutrition is lowered, the nerve and muscular tone is below par; the appetite but sluggishly answers our urging, and the digestive powers feebly respond to the demands made upon them. And, so, the far-seeing physician will look about in his armamentarium for a drug or a combination of drugs which will restore the blood, the nutrition, the digestion, the assimilation, the appetite, the weight, and the powers of resistance of the sufferer to normal, in the quickest possible time. Fortunately, nature has provided two chemical elements, iron and manganese, which are as necessary to the system as life itself, and which, when given in the proper amounts and in the proper forms, will carry the patient through convalescence to health. In the delicate state of the digestion of a convalescent it is of the utmost importance that the forms of iron and manganese administered be such as to become absorbed and assimilated with the least disturbance of the gastro-intestinal organs. The old-fashioned inorganic preparations of iron which still figure in Pharmacopias of various countries are totally unsuited for this purpose. The scientific researches of Hamburger, Bunge, and others, conducted during the past twenty-five years have shown the immeasurable superiority of the organic compounds of iron and manganese. The organic compounds alone have been found to be absorbable in such amounts as to produce the desired action on the blood. Of these compounds the peptonate, which is an organic-chemical combination of iron and manganese with peptone in a solution, known as Pepto-Mangan (Gude) is the most readily absorbed, and therefore the most efficient preparation of iron-manganese known, and as such is used with the greatest benefit in convalescent anemias. A point which is frequently lost sight of in considering the treatment of anemia, is the importance of manganese as a constituent of normal blood, and as an element ranking only next to iron in its power of building blood corpuscles and increasing the life-bearing hemoglobin of these cells.

RHEUMATISM.—We know now that rheumatism means retention chiefly of uric acid. The first thing to do is to stimulate organic activity and the skin here is an active ally. Calcium carbonate compound will dispose of uric acid more promptly than any other preparation. A ten grain tablet should be given

three times a day with a glass of barley water. Saline Laxative (Abbott) one teaspoonful every morning will prove the best saline. Here as in most other diseases of toxic origin the bowel requires to be kept free from pathological bacteria. The sulphocarbolates will do this work promptly and thoroughly. Calcidin (Abbott) together with macrotin and bryonin will relieve pain promptly and prevent changes in muscular tissue and joints. The man who is not familiar with the efficacy of magnesium sulphate solution in this disease should apply to the red and swollen joints, so often seen in rheumatism, compresses wrung out of a saturated solution of epsom salts, epsom salts one ounce, water one quart.

"ERGOAPIOL" (SMITH).—We desire to call the attention of the medical profession to a new pharmaceutical product possessing valuable therapeutic virtues in many diseases peculiar to women. This remedy is known as "Ergoapiol" (Smith), and since its introduction to the profession it has rapidly gained favor with our best physicians. It is strictly ethical, manufactured from the purest drugs and advertised only to physicians. It is the result of an original combination of the following remedies: apiol, ergotin, oil of savin, and aloin, all of which are freed from toxic and deleterious substances. These agents are blended in such proportions as to overcome the powerful irritating qualities of each and raise the tonic properties of all. A glance at the therapeutical indications of these remedies singly will convince the most sceptical of the virtues of "Ergoapiol"—the result of their combination. Since the days of Jaret, Homolle and Baillot, apiol has gradually grown in favor as a therapeutical agent, but until recently it had one decided drawback, that of containing deleterious and toxic impurities in combination. Recently, through the skill of the never-tiring pharmacist, these have been eliminated, and it can now be prescribed without fear of producing disagreeable symptoms, but with an assurance that its full therapeutical virtue will be realized. Even in its impure state apiol gained considerable reputation in the treatment of nephritis, dropsical effusions, amenorrhoea and dysmenorrhoea. Its emmenagogue properties have been greatly enhanced by the removal of all impurities. In small doses it now became a mild aromatic stomach tonic; it is also highly recommended in membranous dysmenorrhoea. The therapeutical value of ergotin is too well known to call for comment here. Combined as it is in "Ergoapiol," it becomes an excellent adjunct to apiol, and adds very materially to the efficiency of the finished product. All students of medicine are aware that oil of savin is a powerful and valuable stimulant to the uterine system, and is one of the most potent emmenagogues known. It is also a powerful gastro-intestinal irritant, and therefore is seldom prescribed alone. But when combined with certain correctives, as it is in "Ergoapiol," it becomes a valuable addition to the drugs already named—apiol and ergotin. Since the discovery of the methods of producing aloin from the different brands of aloes this drug has become very popular, and has taken the place of the crude drug to a considerable degree. Aloin enters into almost every emmenagogue pill and mixture. Its value as a therapeutical agent is so well known that it is not necessary for us to speak of it in detail; yet we desire to say that its addition to the drugs in question aids very materially in making "Ergoapiol," so valuable a combination. Being a mild stomach tonic, it aids in overcoming the irritable qualities of the savin; also acting as a hepatic stimulant, freeing

the portal circulation and relieving the torpid condition of the lower bowel, it goes a great way toward relieving that condition so often present in diseases of women—pelvic engorgement. These qualities make it an ideal adjunct to the emmenagogues mentioned.

THE ANEMIAS OF CHILDHOOD.—The anemias of early life are usually sequels of the acute diseases common to this period. The exanthemata are especially liable to be followed by a depreciation of blood quality, and a protracted convalescence often depends on this one condition alone. Moreover, the frequency with which physical stigmata or infirmities actually date from an attack of measles, scarlet fever, diphtheria or any of the other similar diseases of childhood, can often be properly laid at the door of insufficient or improper care during the very important stage of convalescence from these diseases.

It should be recognized that the hematogenic function while exceedingly active in childhood, is yet very susceptible to all inhibitory influences, among which the toxins generated in the course of the acute diseases, are most common. When a storm infection of measles, scarlet fever or any of these similar ailments is passed, there must follow a period of reconstruction. If the damage has been slight as a result of a light storm or an unusually strong structure, the reconstructive process places little demand on the resources of the individual. But if the storm has been unusually severe and the structure ill-prepared to meet its fury, the rebuilding process is certain to be long and laborious. Deficiency in the quality of the blood is one of the greatest handicaps at this time, and the clinician should recognize this as one of the most important indications for therapeutic assistance.

The action of Pepto-Mangan (Gude) is always very marked in these cases, and it is interesting to note how rapidly children respond to its upbuilding influence. A marked increase in hemoglobin at once follows its use and the red cells multiply rapidly. With improvement in the blood constituents there is a corresponding increase in the whole bodily tone, and it only takes a few days to carry the average patient safely away from the dangers of a trying period.

Pepto-Mangan (Gude) is therefore a very valuable tonic in childhood, and unlike so many of the ordinary hematinics it can be given with impunity to the youngest infant. It has marked alterative properties, and in strumous or marasmic conditions it is especially valuable. It is absorbed rapidly, and is never rejected by even the weakest stomach.

In early life its administration is best effected by giving it in milk, and the dose should range from ten drops to two teaspoonfuls, depending, of course, on the age of the patient.

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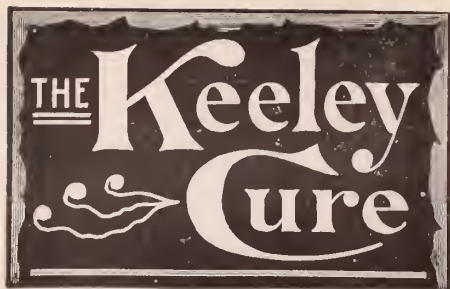
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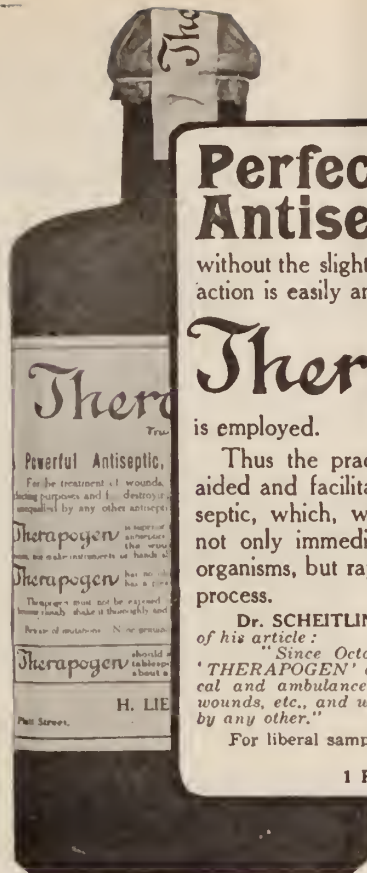
Notice is hereby given that in a proceeding in the United States Patent Office, which is entitled **THE DREVET MANUFACTURING COMPANY VS. THE LIQUOZONE COMPANY**, the name "Liquozone" was barred from registration in the U. S. Patent Office as unlawfully interfering with the trade-mark Glycozone. The individual or corporation in any way infringing upon the trade-mark "Glycozone" which is a lawful trade-mark (Glycozone being a thoroughly scientific and legitimate preparation for the treatment of germicidal diseases, etc.) and duly registered under the new trade-mark law, or selling any merchandise labelled with any mark or name infringing upon the trade-mark "Glycozone" or in any manner resembling the same, will be prosecuted for damages to the full extent of the law.

HYPODERMIC ANESTHESIA.—From all sides come reports attesting the remarkable efficacy of the new method of securing surgical anesthesia with "Hyoscine, Morphine and Cactin Compound, Abbott." The surgeons are taking it up with something akin to enthusiasm. The writer had recently the opportunity of witnessing three serious operations performed under this anesthesia. One was an appendicitis. This patient had two injections of one tablet each, two hours apart. After the last one the attendant came

to report nervously that the respiration had fallen to six per minute! The surgeon got up leisurely and remarked that the patient was about ready for the operation, and without concern proceeded with the work. No nausea, no assistant to see to the anesthetic, no unrest, bronchitis or nephritis, but perfect anesthesia for hours, allowing plenty of time for careful work, with hours of quiet sleep thereafter. Surely this is pretty close to the ideal.

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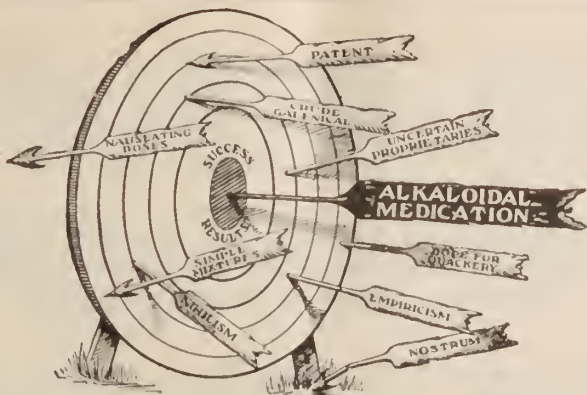
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ORIGINAL ARTICLES.

THE CARE OF SURGICAL CASES:—THEIR PREPARATION FOR OPERATION AND THEIR CARE AFTER OPERATION,—WITH SPECIAL REFERENCE TO ABDOMINAL SURGERY.*

By H. C. Tinkham, M. D., *Dean University of Vermont College of Medicine, Attending Surgeon Mary Fletcher Hospital, Burlington, Vt.*

It is not the purpose of this paper to discuss the preparation of cases who have become debilitated and anemic from long existing disease and whose general condition must be improved by a long course of tonic treatment before operative interference is advisable, or the various post-operative complications, but to discuss the preparation of the ordinary abdominal cases for operation, and the care such cases should receive following operation.

In the evolution of surgery, since the introduction of anesthetics, progress has been mainly along the lines of antisepsis and asepsis and the greater possibilities of surgical work under these conditions.

This is the logical outgrowth of the development of the knowledge of bacteria and their influence upon the post-operative conditions.

Much thought has been given to perfecting methods of sterilization as well as to operative technique, and as a result we have many elaborate methods for the sterilization of the operator and his assistants, the area to be operated upon, etc., etc. Sometimes it seems as though surgery had come to be largely a demonstration of technique and asepsis and the patient was only a factor in this demonstration.

As a result of many years of hospital service as well as private practice, I have come to the conclusion that the preparation of patients for abdominal operations especially, but also the preparation of patients for all major operations, is a more important factor in post-operative conditions, and has a greater influence in establishing a rapid and comfortable convalescence than is generally supposed.

Until very recently the text-books on surgery have had comparatively little to say on this subject.

The average patient cannot contemplate a serious surgical operation which must involve the possibility of death without more or less nervous disturbance. This has the widest range of degree, sometimes resulting in a complete nervous collapse, and occasionally producing fatal results before the operation is begun. The exterior may be calm, but if so it is more than probable that in a large majority of cases this calm exterior is at the expense of additional nerve strain.

In addition to these mental influences on the nervous system we have the direct influence of both the anesthetic and the operation.

The effect these influences have on the nervous system are very unlike in different cases, depending as it does on the nervous temperament of the patient, as well as the condition of the nervous system resulting from the influence the surgical condition has had on it, prior to the operation, the time required to do the operation, and the amount of anesthetic given.

Consequently the post-operative conditions of patients having had the same operation are very unlike.

The secretions of the glands of the body are directly under the control of the nervous system, and consequently the function of these glands must be influenced by an abnormal condition of the nervous system. So that if the nervous system of the patient is disturbed by a long existing surgical condition, and the nervous shock of the operation and anesthetic and the anxiety of an immediate operation, the secretions of the patient are correspondingly disturbed, and there may be a toxemia resulting from disturbed digestion and faulty elimination.

Every surgeon can recall cases where the temperature following operation was 102°, 103°, or even higher, when the wound was perfectly aseptic and healed without any evidence of infection or suppuration. Such temperature can only be accounted for by a toxemia resulting from other causes than wound infection, and is perfectly consistent with the idea of toxemia resulting from disturbed secretion and elimination.

Every physician is familiar with the troublesome conditions of indigestion, flatulency and constipation, with resulting toxemia, in neurotic cases, and it is not unreasonable to suppose that these same conditions may exist in a surgical case, due directly to the disturbed nervous system, and the surgical operation has had nothing to do directly with producing these symptoms, simply being a factor more or less important, in demoralizing the nervous system, and in this way the general secretion.

*Read at the annual meeting of the Vermont State Medical Society, at Barre, Oct. 12, 1906.

The condition of the digestive tract and the accessory organs of digestion are of the most vital importance in patients on whom an abdominal operation is to be performed. As in these operations the manipulations of the intestines tends to stop peristalsis, temporarily, and if in addition to this the secretions of the digestive organs have become so perverted by reason of the disturbed nervous system that they cannot perform their normal function, then follows the natural result—decomposition and fermentation of the contents of the stomach and intestine with the consequent accumulation of gas, and with the intestines more or less paralyzed by manipulation and unable to rid themselves of this accumulation, we have a logical explanation of abdominal distention which so often follows intra-abdominal operations. This condition, if not relieved by re-establishing peristalsis and the consequent emptying of the intestinal canal of septic material and gas, will result in complete intestinal paralysis and fatal toxemia.

If the formation of gas in the stomach is pronounced, acute dilatation of the stomach will result. This will disturb the action of the heart and respiration in proportion to the degree of distension of the stomach and the consequent pressure on the diaphragm and heart. I am convinced that a large majority of the unpleasant post-operative conditions are due to the disturbed functions of secretion and elimination, and that the operation is only a factor in bringing about these conditions. In fact, shock seems to be the only post-operative condition that results directly from the operation and this is an extreme condition of nerve disturbance, so that if the patient escapes or survives shock and has not been infected, the unpleasant post-operative conditions must depend upon other than purely surgical conditions.

There are, then, two important conditions to be looked after in the preparation and care of surgical cases:

FIRST, the condition of the nervous system, and

SECOND, the condition of the secretions in general, but more particularly the secretions of the digestive tract.

The preparation of a case for operation should not extend over more than sixty (60) hours preceding the operation, except possibly in rare cases. The depressing influence of a long and tedious wait will more than counterbalance any good that might come from longer treatment.

The condition of the nervous system of patients should be such that they have restful sleep. If this condition exists no treatment for the nervous condition is necessary. If patients cannot sleep well the nervous condition should be relieved by nerve sedatives. Valerian or asafoetida, or a combination of these with, or

without, sumbul will usually be sufficient if given in full doses. The carminative effect of the asafoetida is also particularly useful. In some cases it may be necessary to give bromides.

It is imperative that the intestinal canal be empty and that the secretions be as nearly normal as possible. The intestine should be emptied without depleting or exhausting the patient more than is absolutely necessary, consequently severe purgation and the habitual use of saline cathartics in the preparation of a case are contra-indicated. Some preparation of mercury will serve the double purpose of catharsis and gland stimulation better than any other remedy, and thus produce, as nearly as possible, a normal condition of the bowel.

On the evening of the third day before an abdominal operation the patient should have a cathartic sufficient to unload the large intestine, the dose must be regulated by the degree of constipation. Compound cathartic pills U. S. P., or aloin compound, or both, usually give satisfactory results.

During the second day preceding the operation calomel should be given every one to four hours in doses from one-tenth to one-half grain, according to the condition of the intestinal tract, the object being not only to assure its being empty, but to stimulate the secretion of all the glands, and thus to produce as nearly as possible a normal condition. The diet for this day should be ordinary nutritious and easily digested food.

During the day preceding the operation cathartics are discontinued—if the results obtained have been satisfactory. If not, calomel should be continued in such doses and at such intervals as the case requires. The result is the important thing, not the quantity of calomel given.

In exceptional cases it may be necessary, in addition to other cathartics, to give salines or an enema of two ounces of glycerine in a quart of warm water, or both.

The patient should receive a glass of some form of liquid nourishment every three hours during the day. The drinking of considerable water during the two days before the operation is desirable.

If the patient is habitually constipated one or two grains of calomel should be given in one dose on retiring the evening before the operation.

It is not necessary to give an enema the morning of the operation, except, possibly, in those exceptional cases where all previous efforts have failed to produce a satisfactory clearing of the bowel, and when it is not advisable to postpone the operation.

No food should be given for eight hours preceding an operation. There is no objection to giving a cup of clear tea or clear coffee three hours before the operation and it is especially ap-

preciated by the patient if the operation has to be performed late in the morning, and the patient has had no nourishment for ten or twelve hours.

Following the operation the patient should be placed in a blanket in bed with plenty of bottles or cans of hot water, so placed that there can be no danger of burning the patient. These bottles are removed as soon as the patient has come out of the anesthetic and is thoroughly warm. Before the patient comes out of the anesthetic from one to two quarts of hot normal salt solution should be injected high up into the colon, this may be repeated every four to six hours, if necessary, to relieve the thirst. It will also stimulate secretion and elimination.

If the stomach was not washed out before the patient left the operating room a glass of hot water should be given as soon as the patient can drink it: if vomited it clears the stomach of mucus and secretion and tends to prevent the formation of gas and also to relieve nausea. It also stimulates the action of the stomach.

In neurotic cases and cases who have had considerable trouble with the stomach before operation, it is advisable to wash out the stomach before they come out of the anesthetic, it relieves nausea and vomiting and the danger of stomach distension from gas.

As soon as the patient has recovered from the anesthesia sufficiently to swallow, one-half to one grain of calomel should be given and the same quantity repeated every two hours until from three to six grains have been given, the amount given depending on the condition of the intestinal tract and the degree of habitual constipation.

Twenty-four hours after the operation, if the bowels have not moved, an enema of two ounces of glycerine in a quart of hot water should be given and repeated every three hours until peristalsis is restored and the patient is able to void gas voluntarily.

If the sphincter is irritable and does not allow of the easy passage of flatus the rectal tube should be introduced well up into the colon and allowed to remain for a short time at sufficiently frequent intervals to keep the colon free of gas.

If there is acute dilation of the stomach, the stomach should be washed out with hot salt solution, this to be repeated as often as necessary to relieve the distension.

Hot water or hot weak tea should be given freely to relieve the thirst, one or two ounces every half hour to an hour, according to the thirst of the patient, during the first twenty-four hours, and almost "ad libitum" during the second day after the operation. No cold water should be given until all danger of distension of the stomach with gas is past, which is usually about the third day after the operation.

Patients should be made reasonably comfortable by the judicious use of some opium preparation, it not only relieves the pain and saves the nervous system an enormous amount of tension, but it is one of the best heart stimulants in post-operative cases.

It seems brutal to me to allow patients to suffer the horrible pain that often follows an abdominal section, especially after operations on the uterus or ovaries.

The principal objection to the use of opium in these cases has been its influence in stopping peristalsis and tying up the secretions.

It seems much more reasonable to me to relieve the pain and nervous strain by giving some preparation of opium and to stimulate secretion and peristalsis with calomel—which can be done practically without pain.

One-half grain of codeine hypodermatically, repeated at intervals of from 1 to 4 hours, will relieve most cases. If it does not, one-eighth to one-fourth grain of morphine should be given with the codeine until relief is obtained.

The patient should be allowed to lie in any position that is comfortable, always being turned by the nurse for the first week.

Strychnine is indicated in most cases for a few days following operation, the amount depending upon the condition of the case. If the heart action is weak digitalin one-fiftieth grain hypodermatically every hour should be given until a good pulse is obtained, and continued at such intervals as is necessary to maintain it.

If shock should follow the operation, thirty drops of adrenalin hydrochloric in a quart of hot normal salt solution should be given by hypodermatoclysis. This may be repeated every hour until the condition is improved.

Nourishment should not be given for twenty-four hours after an operation, and not then unless the condition of the stomach indicates that digestion will take place without fermentation. In most cases liquid food should be continued but a short time, the patient being allowed rare steak, chops or chicken, with bread and fruit as soon as they desire it—usually the third or fourth day.

In exceptional cases the function of the stomach and intestines is not sufficiently re-established to allow of food being given for some days, and rectal feeding may have to be resorted to.

Twenty-four hours after the operation the patient may be raised to a half sitting position, if condition of the heart does not contra-indicate it, a half hour in this position three or four times a day is a great relief to a patient, favoring the discharge of gas from the stomach, if present, and relieving, in a great measure, the severe backache that is nearly always present.

In resection of the intestine, or operations on the stomach, calomel should not be given until twelve hours after the operation. All cases for major operations should be prepared in practically the same way as for abdominal section, but it will not be necessary, as a rule, to give as large doses of calomel following the operation to produce a satisfactory condition of the bowels.

All cases should be made reasonably comfortable by the administration of codeine and morphine, this is especially true of cases who have had amputation and are suffering from muscular spasms.

It is very rarely that I have had a case where the amount of calomel given has produced more catharsis than was desirable and this was very easily controlled.

While it is probably true that a large majority of cases will recover from an abdominal operation regardless of what line of preparation and post-operative treatment is given, I am fully convinced that a very much larger percentage of the serious and questionable cases will recover with this line of treatment.

It re-establishes the normal functions of the body as soon as possible after the operation.

It relieves the patient from the danger of auto-infection to the greatest possible extent.

It gives the patient a comparatively comfortable post-operative condition from the first and establishes a satisfactory convalescence in from forty-eight to sixty hours after the operation.

It has been my experience that the convalescence of patients following a laparotomy is not satisfactorily established until the secretions of the gastro-intestinal tract have returned to a sufficiently normal condition to prevent the formation of gas in excess, and peristalsis has been re-established, consequently the advisability of early and radical measures to bring about this result. There is much less danger in a possible over catharsis, which is easily controlled, than there is in a toxic condition with intestinal paralysis. If peristalsis is re-established early it favors the expulsion of gas and mucus, ridding the intestine of toxic material and removing danger of intestinal paralysis and toxemia, and reducing to a minimum the danger of intestinal or omental adhesions.

In conclusion, I will say that in over two hundred and fifty laparotomies treated along the lines indicated in this paper, I have never had a case of severe salivation, and only a very few cases who have had any salivation whatever.

DISCUSSION.

DR. D. C. HAWLEY, BURLINGTON:—The general treatment of the patient both before and after operation as outlined by Dr. Tinkham is in the main in conformity with my own practice. Dr. Strobell made

mention of the omission, on the part of Dr. Tinkham, of the urinary analysis. I am sure Dr. Tinkham had this in mind and it was only an oversight on his part for in our hospital practice every case is subjected to an examination of the urine. Likewise with regard to the use of morphine. Every operative case is given morphine with atropine prior to the anesthesia, and this omission on the part of Dr. Tinkham was accidental for it is the routine practice.

One point I wish to mention is the practice of giving copious drafts of water during the two days prior to operation. It is very important. I give as much as the patient can comfortably drink and I find it reduces the post-operative thirst.

The preparation of the patient on the morning of the operation, in my own practice, is very similar to Dr. Tinkham's, except that I would not agree that no nourishment be given. Early in the morning, four or five hours prior to operation, a large cup of any clear broth may be given. I don't expect there is very much nourishment in it, but it acts as a stimulant. I find, if a cup of coffee or tea is given the patient four or five hours before operating, only good results follow. The clearing out of the alimentary canal prior to the operation is one of the most important points. It should be very thoroughly done. If it is, our solicitation with regard to the patient after the operation is much relieved. It is unwise to proceed with an abdominal operation unless this has been brought about. Usually calomel or salines, or compound cathartic pills may be used satisfactorily, but I usually give calomel followed by salines. So far as the after treatment of the patient with reference to the alimentary canal is concerned, I would hardly let the statement in this paper go by without challenging it. The writer said $\frac{1}{4}$ to $\frac{1}{2}$ grain of calomel should be given every one to two hours beginning as soon as the patient can swallow. It may be given, but it is not necessary as our routine hospital practice demonstrates. We have been too solicitous regarding the movement of the bowels after an operation. We will find that the best practice is not to give large doses of calomel as soon as the patient can swallow to make the bowels move. I am in the habit of giving an opiate in cases of severe restlessness or where there is much pain. Shock is relieved by the injection of salines. I direct that a half pint be injected every four or six hours into the rectum and I find as much good is secured in this way as though it were given high up in the colon. Ten or twenty drops of adrin solution in hot water is good in case of shock. I do not believe in the routine administration of high enemas of salts, oil or turpentine. If you wish a quick reaction give a hypodermic of adrin and spartein and follow this by morphine with atropine. Morphine with atropine is a most valuable combination. It tranquilizes the nervous system, relieves pain, and steadies the heart. Give strychnine before the operation and during it if needed, to prevent shock, but if the patient suffers severe shock following the operation, without strychnine.

DR. C. W. STROBELL, RUTLAND:—Dr. Tinkham has covered the subject so admirably that there is little left to be said. I want, however, to bring up a few points which were not especially mentioned, but doubtless included in the paper.

In pre-aseptic days, very little, if any, attention was given to the preparation of the patient for operation; the diagnosis made, the surgeon was usually ready, then and there, to perform the operation, without any further preliminaries whatever, leaving the patient to depend entirely upon his own vitality to

recover from the combined handicaps of accumulated bodily toxins, septic surgery and shock. The longer I continue in operative work, the more profoundly am I impressed with the necessity of pre-operative preparation of the patient. It is more than half the battle to prepare the patient for the ordeal.

The first thing necessary is a urine analysis and the correction of any abnormal renal function; next in importance, if not indeed first, is to ascertain if bile is present in the blood, a condition highly dangerous in the presence of anaesthesia, especially if chloroform is used. Another important point is to have the urinary bladder empty before operation (except in cystotomy) and sterilized. We do not expect to operate successfully upon the birth canal or external genitals unless asepsis is assured. In supra-pubic and abdominal operations in general, we never know what we may encounter, and so, in females we should always have the vulva and genital canal sterile, to start with, as it may become necessary to drain by way of the vagina.

We speak of "high" rectal enemata; my experience is that when I tell a nurse to give the enema "high" she almost invariably uses a soft rectal catheter like tube, with this tube it is never given "high" since the soft tube does not enter or pass the inner sphincter. What is needed is a semi-solid flexible rubber bougie tube with a tapering olive tipped flexible end, which under steady pressure will find its way up into the sigmoid. The soft tube lacks stiffness and strength, and curls around and around, within the rectal pouch and does not do the work. With regards to post-operative thirst and its prevention, I try to "waterlog" the patient by rectal enemas and by the stomach, for two or three days prior to operation, and a saline enema before the patient leaves the operating table, with directions to repeat this every three hours, until no longer needed. For the nausea and vomiting, nothing is better as a preventative than stomach lavage, before leaving the operating table.

Now as regards shock and its prevention. I think it is advisable, and I have been in the habit, for the past five years, of giving from $\frac{1}{8}$ to $\frac{1}{4}$ grain morphine combined with stropine, previous to the administration of the anaesthetic, and think that the shock accompanying the handling of the viscera is thereby greatly lessened. At the time of the operation we expect the alimentary canal to have quieted down into a normal condition. For a week or ten days prior to operation, we should bring about this perfectly normal condition, and, on the day before operation, we should certainly not interfere, beyond the employment of enemata. After the operation, I am in the habit of ordering calomel in 1-10 grain doses, repeated every sixth hour, mainly for the purpose of maintaining intestinal antisepsis; when I wish to move the bowels I am usually successful with a compound cathartic pill, or citrate of magnesia.

DR. JOHN BLODGETT, SAXTONS RIVER:—I wish to ask Dr. Tinkham one question. Only a few of my cases go to a hospital and one of the troublesome problems is, the intestinal tract after operation. I have come to feel personally that harm is done in emptying the intestinal tract too soon. Where there is peritonitis after operation for appendicitis, does it do harm to move the bowels early? I think a patient should have a chance for his life a day or two before disturbing him, provided the intestinal tract has been well cleared prior to operation. I would like to hear from Dr. Tinkham on this point.

DR. C. B. DOANE, SPRINGFIELD:—I had a case of perforation operated on fifteen hours after first pain. On the third day the bowels showed a little distention but the man was comfortable. I began to feel that this man's bowels were tied up. I gave one-half grain calomel once in two hours, along with mild salines and immediately this man began vomiting and pain came on and he died in six or eight hours. As soon as you begin to excite peristalsis the change comes on and I feel as though salines accounted for this, and are contraindicated.

CLOSED BY DR. TINKHAM:—I am very much pleased that my paper has been discussed so freely. I wish others might have discussed it too, for the greatest good can only come from the free discussion of the subject.

If this paper does any good by stimulating thought on this subject and consequently the more careful preparation of patients for abdominal operation, it will have served its purpose.

Dr. Strobell has spoken of the analysis of the urine as an important part of the preparation of a patient for a surgical operation. The analysis of the urine should be included in the general examination of the patient, and not as a part of the preparation of the patient for operation.

The question by Dr. Blodgett, in regard to the advisability of catharsis immediately following an operation for appendiceal abscess, I would answer in this way: Cases that are unquestionably septic following an abdominal operation, whether the sepsis was an important condition before the operation, or became so after the operation, require the same general treatment,—elimination of the septic material and maintaining the strength of the patient. The most important symptom resulting from abdominal sepsis is intestinal paralysis, as this paralysis removes a most important route for elimination, the earlier peristalsis can be re-established and the intestinal glands, together with the liver and kidneys, can be stimulated to increased activity, the earlier the septic condition can be relieved and the greater the possibility of saving the life of the patient. For these reasons I would recommend free mercurial purgation immediately after the operation as the treatment which will minimize the danger to the patient.

Dr. Hawley has questioned the advisability of the routine practice of giving calomel after abdominal operations.

I know that this treatment is radical and not in conformity with the opinion of many, perhaps most surgeons. My reasons in support of this treatment, instead of leaving the bowels to move of their own accord, or giving a cathartic three or four days after the operation are briefly these:

First, even with a careful preparation of patients for operation we cannot be absolutely certain that the intestinal canal has been completely emptied.

Second, if the intestinal canal has been completely emptied of fecal contents the intestinal secretions, which are made more or less abnormal by the influence of the operation on the nervous system, may decompose and fill the intestine with septic fluid and gas. If peristalsis is re-established and the bowel is able to empty itself of this septic material and gas early, the danger to the patient from this cause is made very much less.

Third, when there is severe nausea the nausea in many cases, will be relieved entirely as soon as the bowels move freely.

It is true that a large number of cases will make a satisfactory recovery from an abdominal operation

if the treatment suggested in this paper is not given. It is also true that there are a large number of cases who will not come to a satisfactory convalescence until peristalsis is re-established, and a few cases will die unless peristalsis is re-established early and the danger from auto-infection removed.

There is no way of determining which cases will become toxic from auto-infection, have intestinal paralysis and become distended with gas, and which will not. The decomposition of intestinal secretions and the formation of gas in the bowel is very rapid, and at the end of thirty-six or forty-eight hours, if decomposition of the bowel contents has begun and the bowel has begun to be distended, it is very difficult, and sometimes impossible, to re-establish peristalsis and the patient dies of intestinal paralysis due to sepsis.

If calomel is given in sufficient quantity to induce peristalsis early, before the toxic condition has produced paralysis of the intestine, this condition is avoided.

A calomel purge will not hurt anyone, and as there is no way of determining which cases will go bad and which will not, and as the calomel purge if given early will avert a very large percentage of the toxic conditions in these cases and will do no harm to the cases that might not become toxic, it seems to me logical to give it after all abdominal operations.

And again, my experience has been that patients who have had an abdominal operation and who are not toxic, reached a comfortable convalescence much earlier if they had the calomel purge. They had less nausea, they were able to take and digest food earlier, and the general discomfiture following the operation was of shorter duration.

COMMERCIAL THERAPEUTICS AND COMMERCIAL THERAPEUTISTS.*

By Geo. L. Bates, M. D., Morrisville, Vt.

To write a comprehensive and finished paper containing all the interesting subject matter which might be brought to light upon a theme like this would require more time for research and compilation than I have had to give to this composition.

There are, I am certain, many interesting features and facts which might be mentioned in connection with this subject which I shall be obliged to leave untouched, not on account of lack of interest, but for the purpose of mentioning only those which will be of the greatest interest and benefit to us here at this time.

There are many things of variable importance and interest confronting the general practitioner of medicine today. Things financial, social and professional. I have reference to certain tangible problems which face the profession as a body. I will call attention to only those which have to do more particularly with us who are here present. I would first mention incomplete medical legislation as it exists; further research along the lines of preventive medicine; the question of life insurance examination fees; a greater regard for professional ethics; and lastly, the proprietary and nostrum medicine evils.

This is by no means all of the many interesting subjects, but a few of the important ones for us to think of.

The nostrum evil is a many headed monster. It has been fondled by the press, and even the pulpit to a certain extent. The law has never, until very recently, done anything to curb the rapid growth of the delusion. Some (very few I hope) doctors have lent their aid to promulgate the satanic curse, while some of our political friends, whom we have helped to elevate into positions of prominence and power have been engrafted onto the animal as another powerful and farreaching arm. A monster in every detail, form and function, dealing in disease, distress and death. The absolute factor in ruining more men and women, physically and mentally, than could be soon estimated. A certain cause of death in an increased rate each year; the prime factor in producing more disease perhaps than any other one cause; the everlasting curse upon us as a nation, on account of the hundreds of morphine, cocaine, and alcoholic inebriates which it produces yearly, and will continue to produce until certain stringent measures are taken to stop the sale.

The physicians have awakened at last to the necessity of investigation. The A. M. A. has organized a Council of Pharmacy and Chemistry to investigate, and pass upon the ethical and other preparations with a view to noting and listing those which are thought to be useful and reputable. The work of this board is to give to the profession the truth and all the truth in regard to the different remedies, their therapeutical value, pharmaceutical reliability, chemical composition, strength of ingredients, etc. This was the first direct assault of the medical profession as a body upon the different medicine manufacturers. Articles in different journals and papers, controlled by these people, long and eloquent, burning with criticism, protestations and threats, gave evidence of the nearness to the magazine. The first broadside came, and war was then only just declared. A thorough investigation of these different medicines, the manner by which they are presented to the physician, the honesty of the preparation, the uniformity of the ingredients, etc., will make a firm basis, a strong foothold, for the general practitioner; perhaps a general revolution in his methods of dispensing at the same time, and furthermore a life insurance to the public.

This is a question of vital-importance to the doctor, the druggist, the newspaper men, and last but not more particularly, to the general public. To the doctor it is important because while taking an undue advantage on account of the many dishonest claims to their merits, it purposes to leave very little to his own ability. It is lowering the dignity of the profession to cope with

*Read by title at the annual meeting of the Vermont State Medical Society, at Barre, Oct. 12, 1906.

this sort of humbug. He will soon begin to rely too much upon the supposed magical power of some particular combination, and ere he is aware, he is practicing medicine symptomatically, simply because he knows from what he has read in the exhaustive pamphlets sent to him by the manufacturers of different remedies, that he has a combination in his office which will exactly fill the bill. It does not require much thought or study to practice medicine when all we have to do is to listen to the symptoms and apply the magical remedy, which is guaranteed to cure. It is here that the temptation to become a commercial therapist is the greatest. We have been taught for years that money is the one victory in life. Everyone has been told to strive for money. This is the bottom of the greed. The condition is this: the gold noblemen have been made objects of envy. They have been exalted because they have gained gold. No one asks the cost. Everyone is struggling to get into their particular set, and as it cannot be done by prudent accumulation, speculation is the only recourse, therefore, the whole world having made the deductions, has stopped honest trade, and apparently is going into swindling and robbery. Here then is one of the great evils.

The grave evil to the doctor, from the proprietary medicine standpoint, is the influence it might have on his reputation, as well as upon his general skill as a therapist. Narrowness and limitation would certainly be brought about. Lack of care is bound to come about when we attribute too much benefit to the many and myriad preparations which floats in upon us for an introduction during the year. I would suggest a careful study of the range of therapeutics and pharmacology in a state of dilution, that is, with a grain of salt before administering to the patient. Time generally does either one of two things with any particular new departure. Death intervenes within a very short time, or it develops strength and influence according to its merits.

Then again the doctor is put into a very embarrassing position by many of the different proprietary medicine manufacturers. Many of those who make their claims as ethical to the physician, by adopting the original package methods are advertising directly to the laity. In other words, they are not willing to accept one-half, but want the whole pie. There are many other methods of advertising to the laity by these people which are even more direct than this, and as we look over a list of the firms in whom we have had confidence, we observe that the germ of putrefaction has contaminated more than one of them. This is another example of more evidence where honest trade has given way to corrupt methods, scheming artifice, and wholesale swindle.

Before taking up another phase of this subject a perfect understanding of what really constitutes patent and proprietary medicines and nostrums should be arrived at. Without doubt these terms have been very sadly tangled, and there is even yet prevalent a hazy understanding of the true definitions. For explanation I will quote from the editorial department of the New York State Journal of Medicine. "A proprietary medicine is an article which any person or firm has the exclusive right to manufacture or sell"; which definition includes a medicine of unknown formula or secret process of manufacture, as well as known formula or published process of manufacture. Proprietary medicines includes first: patent medicines, all of which are of known process of manufacture; second: pharmaceutical mixtures of known quantity and quality of ingredients; third: nostrums, such as a secret pharmaceutical mixture, and the so-called synthetics of secret formulae protected by a trade-mark. A patent medicine is a new and useful definite chemical compound of known formula, the process of manufacture is made public in the patent papers issued by the government; therefore, all patent medicines are ethical. A nostrum is a medicine, the composition of which is secret—a quack medicine, or a formula of charlatan character. The trade-mark protects a class of secret synthetics which are nostrums. They are not patented because they cannot conform to the patent laws which demand that they shall be new and useful definite chemical compounds. The authority for these definitions are the dictionary and the United States patent law.

To sum up: proprietary remedies include ethical preparations and nostrums. All medicines protected by a patent are ethical. Nostrums include secret proprietary mixtures and secret synthetics protected by the trade-mark law.

The old prejudice against a patent medicine very likely dates back to the time when a prescription of a simple or compound mixture could be patented, but such mixtures and combinations have not been in many years, so we are to understand that the patent medicines of today represent only new and useful definite chemical compounds, the patent covering the process of manufacture. Therefore, any competent chemist by following a description of the process described in the patent, can reproduce the identical preparation upon the market. The patent protects against the commercial use of such published process. This patent protects the discoverer or owner in the manufacture of the medicine or drug for a period of seventeen years. These preparations are ethical in that they are not secret, for any one may obtain from the patent office of the government a copy of the description of the process of

manufacture, and the chemical composition. The greatest damage to the physicians of America has been the resulting high price of the product. All the so-called patent medicines put on the market for the public, and many of the preparations advertised and detailed to the physician are not patented, but are protected by a copyright or trade-mark. The existing similarity is easily seen. The physician rightly condemns the use of the so-called patent remedy, but when we overlook the matter, it is easily seen that the manufacturers of these copyrighted proprietary medicines which are advertised to the profession as specifics, use the doctor simply as a medium to distribute and advertise their products to the public.

The lesson which comes to us in proprietary therapeutics seems to me to be the irrational prescribing of certain fixed formulae in the treatment of disease, knowing all the time that disease is never quite the same in different individuals, and realizing the different complications which do, and will arise from time to time, therefore, logical therapy calls for varied and more simple prescriptions.

The cure for a growing evil in prescribing these products may lie in a better knowledge of materia medica and pharmaceutical chemistry, a more thorough study of the pharmacopoeia and a better knowledge of prescription writing; yet any one who refuses to prescribe a medicine of known value on account of its being a proprietary medicine must be termed as narrow.

It is well to bear in mind that there are hundreds of different preparations being used daily by the physician which are not patented, and could not be patented even with desire. This list might include antikamnia, penalgine, neurilla, manola, and many other preparations which you are all familiar with. The name of the mixture is registered as a trade-mark. In order to obtain a patent some novelty must be proved, and another feature is that the proprietors would have to disclose their exact composition, which is the one thing they do not wish to do. Another important point is that the patent is on only for a limited time, as has been stated, for seventeen years, after which time it may become public property. Not so the trade-mark nostrum, which is a monopoly for all time. We have already seen the patent on anti-pyrin run out, and any one can now make anti-pyrin, and even sell it under its original name.

The evil of using proprietary combinations broadcast is indeed degrading to the profession. It is a well known fact that most of the different firms through their representative agents tend to relieve the doctor of the responsibility of diagnosis almost, and treatment entirely. From anemia to obesity—from lobster down to pike—

there is a remedy not in the United States Pharmacopoeia for each ailment. It will not be long before we will have no further use for the U. S. P. or our text book on materia medica and therapeutics. Each separate medicine is sent out with a therapeutical passport, and that is all that is necessary. It promises to deliver the goods.

Now I do not think all these remedies should be condemned. Far from it. There are many good and useful ones. Many that would be hard for us to get along without. We know that they are valuable, because long tried, they have proven themselves. The law of the survival of the fittest will always hold good here. Many of these combinations have made for themselves a place in the treatment of disease which is very secure, and for what they have done for the puzzled doctor, and for what ease and comfort and hope they have given to the poor pain-racked sufferers in the past, we can only give utterance to words of gratitude, praise and commendation.

When reliable firms offer us something new, the combination of which seems logical, it is at least worthy of investigation and trial. It is not necessary for us to adopt it without scrutiny. We may watch its effects from time to time in different cases until we satisfy ourselves of its reliability or otherwise. The one point, I think, to remember is that the better, higher class firms cannot well afford to put upon the market any spurious article. It would necessarily react upon their reputation. The question then of the attitude toward proprietary medicines must necessarily be answered by experience and trial, accompanied by caution and conservatism. Personally I am a good deal of the late Jerry Simpson's opinion about bankers in regard to the nostrum medicine men. A member of the House of Representatives accused him of hating bankers. "That is wrong," said Mr. Simpson. "I do not hate your bankers. I feel about the banker as I feel about that insect, which is never named in polite society, which haunts beds to slaughter sleep. Taking in their private lives, and considered from the point domestic, both the bug and the banker are doubtless all their friends could ask or desire. They may be model husbands; affectionate in their families; indulgent fathers, and good neighbors, practically without a flaw. No, it is not the banker, nor yet the bug that I hate. It is the business he is in."

The evil wrought upon the gullible public by these fiendish nostrum concoctions is farreaching, not only in point of space, but in the enormity of the gruesome results, which can be seen as a blood red trail extending from Eastport to San Diego, and from Vancouver to the Florida Keys.

The press, which we have been brought up to look upon as a saving grace, has become alienated to this wholesale national disgrace (the nos-

trum traffic), and for the "Yellow Dust," furthers the cause of crime, inebriacy and death. It is money gained, and at what a cost to the public. Let some one estimate, if he be imaginative, the cost of one cocaine habit, one morphine habit, one chloral habit, one alcoholic habit. Estimate, if your imagination will lead you, and tell me what cost you put on the lives lost from acetanilid poisoning only taken in patent headache cures. We will not chronicle the responsibility of the press, but of course we cannot help but realize that through their agency, a host of fiendish fabrications are being read and swallowed by the public, and that the demand for nostrums is thus increased. This is, as I have said, done for money alone. No other gain can come from it, and in this connection, it may be interesting to know that one-half of the money paid for nostrums in the United States, finally finds a resting place, deep-seated in the pockets of the newspapermen. This fifty per cent. of money paid for proprietary nostrum medicines in the United States represents between fifty and sixty millions of dollars, and this goes to further a cause which can have only one tendency—degradation. I cannot refrain from quoting:

"Here shall the press, the people's right maintain ;
Unawed by influence, unbribed by gain."

In connection with some things that have been mentioned in this paper, it will be interesting to know certain of the individual evils of some of these different remedies. We will commence with the particular one which we as Vermonters are most familiar. We dislike very much to have Vermont left out of such a notable history. In Vermont we have gum-chewers, medicine fakers, maple sugar, and Paines' Celery Compound, with some other things to make us famous.

Paines' Celery Compound contains 21% of alcohol; Ayers' Sarsaparilla, 26%; Burdock Blood Bitters, 25%; Hood's Sarsaparilla, 18%; Lydia Pinkham Comp., 20%; Parker's Tonic, a remedy for the cure of drunkards, 41.6%; Green's Nervura, 17.2%; Hoofland's German Bitters, purely vegetable and free from alcohol, 25.6%; Golden's Liquid Beef Tonic, "for treatment of alcohol habit," 26%; Kilmer's Swamp-Root, 7.32%; Hostetter's Bitters, 44%. Certainly there is here represented enough booze to remove the tired feeling from the aching bones, to quicken the mental faculties, to refresh the inner man, and tempt one down through the spice-scented corridors into the garden of the realm of Bacchus.

We note also that the government has prohibited the sale of certain of these remedies to the Indians for an obvious reason. I do not presume to give many statistics in this paper, however, there are a few facts that cannot help but

have some interest, especially as they savor of the truth of conditions as they really exist. Gained particularly from periodicals, magazines, and medical journals I have a record of forty deaths from acetanilid poisoning. In each case it was taken to relieve headache, or as a stimulant, and was taken without the prescription of a physician. Some of the remedies which contain acetanilid as a principal ingredient of service, more particularly of course to relieve pain are: Orangine, Bromo-Seltzer, Royal Pain Powder, Miniature Headache Powders, Megrimine, Anti-Headache, Dr. Davis' Headache Powder, Ammonol, Salacatin, Phenalgine, Sephalgin, and many, if not all, the druggist-vended pain and headache cures. It is a fact also, as many know, that the percentage of certain of the ingredients in these different nostrum preparations have been radically changed since the more recent State Legislation, especially alcoholic strengths, in the different remedies.

It is here as we look over the list of the more common remedies which have been advertised to us and detailed to us as ethical, many of which have become household panaceas, that another evil in the methods of these manufacturers is brought to light. Their mode of advertising in the secular journals as well as in medical periodicals, and also the individual distinction that some products have to distinguish them particularly, the advertising matter in the original package, or some particular peculiarity in the shape of the package, of course leads us to suspicious interpretation of the methods that hardly seem straightforward to us, but which gives them access to a wider field in which to introduce their concoctions to a susceptible public. The danger in the broadcast use of many of these products like Phenalgine, Antikamnia, Salacatin, Ammonol, etc., is readily understood by the doctor, but it is not so readily understood by the layman who argues that if the doctor prescribes such and such remedies for certain conditions, he knowing the remedy by name, therefore, can prescribe it for himself and his family, under what seems to him similar conditions, and then the trouble begins. Criticism not only from the medical profession, but from the intelligent laymasses should indeed be severe and lasting upon these manufacturers. It is right here that Legislature has finally commenced to do its work through the Health Board, Patent Medicine Bills, and Pure Food Laws, the last of which has struck dire misery to the hearts of proprietary and nostrum manufacturers, and confusion to those who gain from its sale their livelihood.

One particular condition which exists more or less widespread in America is the wholesale use by physicians of the many different products, many of them synthetical, which are manufactured

in Germany as well as other countries. Doctors seem to have a mania for tumbling over each other in their feverish anxiety to prescribe these remedies as soon as the preliminary literature regarding their therapeutical action is read by them. The only reason which I can see for this demonstration is the extreme high price of the different products. Of course, there are many of them useful. It would be strange indeed that out of the many hundreds of different remedies that there should not be some. Some are positively dangerous, and a large percentage of no especial value; and I presume, none no nearer specific than the older and more simple remedies. Too many foreign compounds, drugs, etc., are being used. Through the investigations of the Council of Pharmacy and Chemistry we shall reap a great benefit in finally being able to positively note the comparative action of different preparations along certain clinical lines. We will no longer be obliged to take the statements from the manufacturer or exploiter of these preparations as an ultimatum, but can see for ourselves in cold unchangeable figures the facts we wish to know.

Another and more modern medicine enterprise, and one which we are perhaps more able to give just testimony in regard to from our actual observance every day, is the Rexall fake. This particular specialty is to the physician a menace in this locality as great and far more disgusting than many which I have already alluded to, and no doubt is as dangerous to the general public. The methods of advertising and the manner in which they get their salesmen interested in the scheme by becoming stockholders, makes it more of a swindle and more eminently successful—at least for a time, in hoodwinking the public than many of the other methods chosen by different nostrum manufacturers. The little pasters with the words "If you get no relief from this remedy, try the Rexall preparation. If it does not benefit you, we refund your money," are put upon all other kinds of medicine before leaving the shop. In some cases it has been known to be placed on a physician's prescription. This firm has never paid a dividend, and very probably it never will. It makes the ordinary physician feel inclined to doubt the druggist where he sees the Rexall sign. It is savoring, and even suspicious of substitution at least, and that evil, while it does not exist in Vermont to a large extent, is met with frequently enough. You are all too well acquainted and familiar with these remedies to need anything only your attention called to them, but the principle here is just the same as the principle in regard to other proprietary medicines and nostrums, and that is the principle which lies between preparations ethical and unethical.

While speaking of the relationship between the newspapers and the medicine manufacturing companies I endeavored simply to make plain the manner by which these many preparations have become sought for by the innocent public. The revelation of the character and component parts as they exist in the different nostrum remedies of course cannot help but show up to the thinking person the extreme unreliability, and the lack of therapeutic value which they have. A feature which is interesting to us as physicians, and one which should be more thoroughly understood by the public is the co-operation of the newspaper and the nostrum manufacturing companies and the silent manner in which their relationship goes on. Almost every newspaper is bound to silence and to assistance in swindling and defrauding the people into using these remedies, by certain clauses in the advertising contracts made with the manufacturing companies which agree in case any State or National laws are enacted harmful to said nostrum manufacturing company, that the contract may be cancelled by them from the date of the passing of the law. It is also agreed that the nostrum manufacturing companies may cancel the contract in case advertisements harmful to their interests or in case any matter in any of the columns of the paper appears which is at all detrimental to their interests. This shows the hold that this universal humbug has upon the newspapers of the United States, and the pressure which is brought to bear to keep them into line. *Yellow* journalism is bad enough as an evil and very likely is growing worse, but the direct effects upon the innocent laity and general public through *Black* journalism is extremely evident to us. The causes of the nostrum evil are many and varied without doubt. The treatment necessarily will have to be more or less varied and somewhat symptomatic. The latter is what is agitating the general profession today, which is leading to general discussion in many of the better medical periodicals, and all the medical societies. I am very much inclined to think that great benefit might be derived from the individual taking more time and care in his prescribing and dispensing. Thoroughness along the line of prescribing is certainly an important element in every physician's business, important as the examination. I have no doubt that the remedy which will give best and greatest results has already been discovered and that is, publicity—a general knowledge by the public of this condition as it exists, and the enlightenment of the profession more and more in regard to the proprietary medicine traffic, and the general tendency of the prescribing of these preparations broadcast. The knowledge of the contents of different prepara-

tions, the strength, the ingredients, etc., the comparative value therapeutically as evidenced by a clinical investigation.

The war is on, and many States have already adopted Pure Food Laws, laws regulatig the sale of certain proprietary medicines, laws calling for all medicines containing poisonous ingredients to be labelled with the Skull and Cross-bones, and showing the amount of such ingredients in a given quantity. Also laws regulating and restricting the sale of medicines containing a large percentage of alcohol. I think without doubt that the present laws will be modified, strengthened and amended until this curse will be under close supervision. There is every reason to believe that within a few years a majority of the States will have passed Patent Medicine Bills providing—the most radical—for the publication of the entire formula; or at least for the labelling of dangerous drugs as the Pure Food Bill now requires in the Inter-state commerce.

The great and grand principles in any investigation are justice and truth. It is for the purpose of bringing to light these facts that investigations are made, and when ascertained are far richer and more precious than the gold we delve for. Civilization and the advancement of good citizenship demand truth; prosperity calls for the truth in whatever line it may trend. Let no man think that a swindle can always last. The principle of truth, which is one of the necessary ingredients to life in all transactions, will at last rise to demand audience. "Truth is mighty, and shall prevail."

In speaking of truthful principles the appropriateness of mentioning the relationship which should exist between doctors appeals to me. There is no more significant demonstration of an insignificant mind than a man who is always unethical to his fellow man in business.

Honest, truthful and ethical principles among medicine manufacturers as well as among men who prescribe medicine are the principles which will impress the public to a greater admiration, a higher esteem and insure success and prosperity. It is after a review of such wrongs and evils as have been noted in the pages past that the lofty eminence of the practice of medicine through the parted curtain stands revealed. The eminence which each and all may help to formulate. The eminence of the practice of medicine, as it should be practiced. The high ideals, the sound principles, the pure motives, the firm and steadfast truths are the factors that furnish us impetus to the lofty aspirations, to the culmination of ambitious desires, and we hope to "Well done, thou good and faithful servant." These are the principles that make it so hard for us to qualify, but these are the principles that lead us to love the work, arduous and exacting though

it may be, and to look forward and upward, hoping for no greater reward than success.

ERYSIPELAS FOLLOWED BY CONFINEMENT.

By Louis J. Pons, M. D., Roxbury, Conn.

Some time since I was called to attend Mrs. B, aged 41, (mother of three children), pregnant about eight months. She had a temperature of 101° F., pulse 85, appetite fair, and bowels regular. Limbs swollen badly, urine containing about one-sixth albumen. For three days previous to my first visit there had been a gradual swelling and redness of the skin and subcutaneous tissues about the nose and eyes. I diagnosed the trouble as erysipelas. I ordered a laxative of calomel and epsom salts, tincture of iron in twenty gtt. doses every four hours and sulph. quinine 2 grains every three hours. Locally a lotion of alcohol and carbolic acid. On the second day the quinine was reduced owing to slight uterine pains produced. The temperature ran to 105 on the fourth day and the disease had spread to the ears—acetanilid, whiskey and acetate of potassium were added to the treatment.

By the sixth day the face and scalp were so badly swollen that the patient was unable to open the eyes, pus forming in the eyelids, which I wanted to evacuate but was not permitted to do so, these ruptured two days later, discharging a large quantity of pus. The mouth became very sore so that the tincture iron was replaced by a tablet of iron, arsenic and strychnine. The pain being very severe a few doses of morphine and acetanilid were administered, also calcium sulphide, one-half grain every three hours added to the treatment. Fluctuation appeared in several places on the scalp, which were freely opened and washed out with Dioxegin and carbolic acid solution. The quantity of pus discharged from the various openings was very large. In a few days the inflammation began to subside and the inflammation began to subside and the eyes having been closed eight or nine days, were improved so that she could open them, although the right eye was badly ulcerated and the sight was poor, the lids adhering to the eyeball in several places. Antiseptic eye washes were used freely and some days afterwards the adhesions were separated by surgical interference.

Convalescence was established in about five weeks, and also about five weeks after the commencement of the attack the patient was confined and delivered of a male child weighing ten pounds. Owing to the cramped quarters, and unsanitary surroundings, I expected to have a case of septicemia on my hands, but at no time after labor did the temperature rise to 100°.

Throughout the entire illness the patient was able to take plenty of nourishment. To this and strict antiseptic precautions before and during labor I attribute her perfect recovery.

The principal points of interest are: (1) The unusual severity of the disease. (2) The advanced stage of pregnancy. (3) Albuminuria. (4) The normal labor, post-partem condition and uneventful recovery.

THE HOUSE FLY AND ITS CONNECTION WITH DISEASE DISSEMINATION.*

By G. K. Dickinson, M. D., Jersey City, N. J.

The channels by which disease germs are carried is a matter much discussed by the profession and the laity. This question has been answered by superstition and plausible ignorance for ages. Agents, at one time believed noxious, have become practically ignored. It behooves the physician and the sanitarian to investigate carefully and scientifically such means of dissemination as seem potent. The mental attitude of the profession toward flies as an important agent in the spread of disease has been one of credulity and indifference. The object of this paper is to present this question in its several aspects, quoting only those authorities whose statements are the result of careful observation and experimental investigation.

Seven different varieties of flies are found in our houses, 98 per cent. of which is the common house fly (*Musca domestica*). Born in manure, generally that of the horse, or in decomposing matter of any kind, vegetable as well as animal, they enter our homes to alight on foods there stored. Their tastes are indelicate and omnivorous; they subsist on sputum, fecal juices, and the slime and dirt that sticks to exposed surfaces.

House flies are without stings, and are unable to penetrate the skin. Their proboscides, through which they feed, are connected with an extremely active salivary gland, capable of pouring out a large quantity of saliva, which the fly projects against a dry surface, swallowing the subsequent solution. Naturally, solid particles, living organisms, parasites, and eggs, small enough, may pass into this digestive tube. Bacilli of different types and eggs of the nematodes have been observed in the proboscides, stomach, intestinal tract, and defeca-

tions. The time that particles remain in the digestive tract of the fly is from 12 hours to 23 days. Evidently the digestive secretions are not active for harm, as organisms will not only pass through alive, but increase in number while in transit. There must be some absorption of the toxins of bacilli, for flies die in large numbers which have had the fortune to imbibe such bacilli as those of the plague and anthrax. Flies are large breeders, lay their eggs by preference in horse manure, but also in decaying meat, meat broth, cut melons, dead animals, and even in cuspidors. On these substances their larvæ subsist until they hatch. From 10 days to 2 weeks after the time the egg has been laid the fly is fully hatched. It is estimated that one fly, laying 120 eggs at a time, will have a progeny amounting up to the sextillions at the end of the season. Busck¹⁵ took a quarter of a pound of horse manure and found in it 160 larvæ and 146 pupæ. This would make about 1,200 house flies to a pound of manure. In a cubic inch of manure taken two inches below the surface 200 pupæ were found.

Caldwell,⁴¹ noting fly larvæ in countless numbers in refuse which had been buried 3 days, questioned as to what became of the flies when the pupæ were hatched deep in the ground, where, after careful search, but one dead fly was found. He made experiments to solve this problem, taking earth and night soil from the trenches, putting it in a glass box, the top of the box being covered with muslin carefully fastened down with gummed paper. The soil and earth were carefully arranged so as to form an imitation of a shallow trench. On the fourth day the first fly made its appearance, and by the morning of the seventh day the space between the muslin and the paper was swarming with them. He analyzed the events as follows: The ova are deposited in the latrines, and are conveyed in filthcarts to the trenches; the larval and pupal stages take place below the ground, and the developed fly makes its appearance between the covering of earth. He never succeeded in hatching flies in wet earth.

Most writers claim that flies do not travel far from the locality in which they are bred, and little is known as to just what distance they may cover. Professor Packard, according to Ernst,¹³ gives the rate of speed of the common house fly as 5.35 meters per second, or a mile in 5 or 6 minutes, which is at the rate of 10 miles an hour. Packard thinks any of the flies can scent their food for several miles, and might fly 20 or 30 miles a day if aided by winds.

*Reprint from the *Medical Record*.

Our present accurate knowledge of the possible spread of diseases by flies is antedated, like many of our modern ideas, by the inferential observations of astute observers of past times. As early as 1498, in a work attributed to Bishop Knud,²⁴ is the statement that the plague may be foretold by frequent changes in the weather, much fog and rain, and the increased number of flies, and in 1577 Mercurialis noted that flies, after lighting upon the sick, visit other houses, depositing their contents upon bread and other articles of food.²⁶

Sydenham¹ (1666) says: "From my own practice I know of only two observations by which we can prognosticate the healthiness of the autumn that is to follow; first, if fevers appear unnaturally early, the season that follows will be exceedingly favorable to the development of epidemics. I have remarked that, if swarms of insects, especially house flies, were abundant in the summer, the succeeding autumn was unhealthy. This I observed to be the case during the whole summer of the aforesaid year (1661), while in the summers of the two following years, which were very healthy, the insects were very few. Still, I must remark that at the approach of even so severe a disease as the plague, they were not observed to be very abundant. With these two exceptions I have observed that all prognostics are fallacious."

In 1853, "J. F."²⁴ referred to the increased number of flies in cholera times, and in 1873, Nicholas,²⁴ speaking of the cholera epidemic at Malta in 1849, states that he was then impressed by the possibility of flies transferring diseases, as they were present in great numbers, and had free access to dejections and food.

Marpmann²⁴ (1864) said that the natives of Friesland blame the spread of hog erysipelas to flies, and Francis,²⁴ in 1893, reported the case of a woman he saw in 1846 who developed cholera shortly after swallowing a fly, and who died from the disease. Joseph²⁴ believed that domestic flies may carry bacilli and deposit them on wounds, and that anthrax may result from infected flies being crushed on a wounded surface.

The inferential deductions of the better-informed writers of recent date should be admitted to the argument. Davaine (1868)²⁴ stated that the infinitesimal quantity of blood which suffices to transmit anthrax correspond with the amount of fluid in the fly's proboscis. He claimed (1870) that the role flies play in the transmission of anthrax had long been known. Moore⁷ (1893) suspected flies as being carriers of cholera, typhoid fever, tuberculosis, anthrax, and leprosy. Battersby⁸ (1895) attributed an epidemic of typhoid fever to flies which were abundant, the water supply being beyond suspicion. Bachman¹⁰ (1898) suspected the ability of flies to

carry the eggs of parasites and deposit them on food. Joly²¹ (1898) argued that if flies can carry pollen, why not bacterial matter. Veeder¹⁸ (1898) noting a commode from which typhoid excreta had been recently emptied without cleansing, and placed next to a pitcher of milk, saw flies gather around both, endangering, in his opinion, not only that household, but the whole neighborhood.

Hervieux,²³ observing that in the epidemic of smallpox in Tamorna-Djedida the disease spread in the direction of the prevailing winds, placed the responsibility on flies. Abbott²⁵ and Rosenau²⁸ make flies responsible for much of the spread of typhoid fever, for they breed in and feed upon infected discharges, and convey the infection to the food supply, particularly milk. They may alight on the lips and other portions of the body.

Parke²⁷ notes the possibility of flies distributing anthrax, plague, cholera, typhoid fever, tuberculosis, trachoma, septicemia, erysipelas, recurrent fever, and leprosy, and adds that they may also transport the eggs of animal parasites and deposit them on food. Martin³³ observes that an increase in the number of flies is followed in about 1 week by a corresponding increase in diarrhetic diseases, and in 3 to 4 weeks by an increase in typhoid fever. Nash³⁴ noted the unusual absence of summer diarrhea, and at the same time an absence of flies—the flies and enteric conditions appearing at the same time later in the summer.

Cobb⁴⁴ saw a box of dates exposed within 100 feet of 5 tuberculous patients spitting, and watched flies going from the sputum to the exposed fruit. Braun⁵⁰ lays the distribution of the oxyuris to flies.

There seems to be no restriction to the diet list of the fly. Common observation will show that anything organic serves as food. In Egypt they swarm around the sore eyes of the natives. In the hospitals they congregate around exposed wounds and dressings; in the field, on dead animals; in barns, on the sores and nares of sick animals, and wherever dejecta have been thrown or sputum expectorated there will flies alight and feast. The logical conclusion would be that whatever particles existed in these several localities small enough to be drawn into the stomach of the fly, passage of such would occur, and, if bacteria be present, make the host a receptacle and carrier of the same, to be disseminated later.

Any marked change in fly life impairs their vitality. In the open they undoubtedly live for a season; confined in bell-jars or cages at ordinary temperatures, a goodly number die within a week.^{24 39 52} The health and longevity of flies also seem to be materially affected by the bacteria which they may ingest.

It has been noted that in plague laboratories

dead flies are numerous, giving the suggestion that they might have succumbed to the effect of contained plague bacilli.²⁷ This has been proven by Davaine,²⁴ who fed 4 flies on anthrax blood, 3 of which died.

Nuttall²⁴ experimented with *Musca domestica* fed on animals dead from the plague at 14° C. All were alive at the end of 8 days. Another experiment found them all dead on the seventh day, whereas of the controls only 20 per cent. had died. In the third experiment all were dead on the eighth day, and 6 out of 14 died of the disease. At higher temperatures flies die more rapidly, mostly within 3 days. He states that the fact that infected flies can live for several days points to the probability of their playing an important part in the dissemination of the plague, as they have plenty of access to food into which they might fall and die, or on which, in again feeding, they would deposit their excreta laden with plague bacilli.

Lord³⁰ fed flies on tuberculous sputum, 10 to a field. Out of 30 flies, 26 died in 3 days, the remaining ones becoming inactive. Of the controls, 6 flies confined and fed on nontuberculous sputum were all found dead in 2 days. Of 6 others fed on water, sugar, and meat, and similarly confined, 2 died in 2 days; the remaining 4 were alive at the end of the week. A writer in the *Healthy Home*⁵² found that confined flies fed on tuberculous sputum died within 2 to 3 days; controls, fed on clean milk, 8 to 10 days.

Experiments have been made to demonstrate how long bacilli would remain alive when dried on the external parts of the fly. From flies caught in an autopsy room at Hamburg during a cholera epidemic, after feeding on cholera bacilli, allowed to fly around a while and then recaptured, roll cultures were taken at intervals, giving positive results even after an hour and a half had elapsed,⁴ and cultures were obtained from the tubes of the feet after 17 hours.⁴³

How long organisms will remain alive in the gastrointestinal tract of the fly has been investigated by several experimenters. Although the number is not sufficient to be conclusive in each instance, still their results are entertaining.

Cholera bacilli were found in flies' dejections as early as 17 hours after feeding and as late as 4 days.²⁴ The bacilli of typhoid fever were found in the dejections as late as 23 days,³⁰ and tubercle bacilli as early as 18 hours.³⁹

If the secretions of the gastrointestinal tract be not inhibitive, and bacilli remain long enough in the same at a proper temperature, there is a possibility of their increasing in number. This has been noted at least twice. Lord³⁰ found that the bacilli in fly specks had increased in size and showed evidences of branching. The bacilli in the field numbered 10, and in the dejections 150.

The strongest evidence, and the one least controverted, is the trinity of laboratory experimentation, the finding of pathogenic germs in the interior of the fly, the development of the same by cultures, and the production of disease conditions through inoculation. Numerous observers have taken the trouble to verify their suspicions.

Bollinger² proved the presence of anthrax bacilli in the stomachs of flies. Marpmann²⁴ squeezed fluid from the proboscides and ani of flies which had fed on erysipelas bacillus, and found cocci and bacilli. He also fed them with nutriment containing the bacillus prodigiosus and bacillus fetidus, with like results. Maddox²⁴ (1885) found live bacilli in their dejections.

Spillman²⁴ and Haushalter²⁴ found tubercle bacilli in the abdominal cavities of flies caught in a consumptive's room, also specks scraped from the walls and windows of hospital wards for consumptives. They fed flies on tubercular sputum, and proved the presence of tubercle bacilli in the intestines of flies and in their excrements. Hofmann³ made similar experiments and found bacilli in 4 out of 6 flies. Anthrax bacilli were found in flies' dejections by Celli²⁴ and Alessi.²⁴ Stiles²⁴ found the eggs of the ascaris in the larvæ and in the adult fly. Simmonds⁴ (1892) examined flies present in an autopsy room at Hamburg and found bacilli in large numbers. Recognizing the source of danger, he ordered the bodies sewed up and the tables cleansed, after which no bacilli were found in the flies in the room.

Uffelmann⁵ allowed a cholera-infected fly to drink out of a glass of sterile milk, and after keeping the latter at 70° F. for 17 hours, found each drop to contain about 100 organisms. Yersin²⁶ (1894) also found living bacilli by microscopic examinations. Billings¹¹ found anthrax bacilli in the stomachs and intestines of flies collected from the body of an infected steer. Raimbert²⁴ made the first microscopical experiments concerning anthrax in flies in 1862. He kept flies in a bell-jar containing a vessel of anthrax blood diluted with water. After the flies had drank the fluid and soiled their bodies, he found bacilli in their proboscides in 2 hours, and later in the excrements.

Grassi²⁴ fed flies on water containing tænia sodium. The eggs came away unaltered in the flies' dejections. He also experimented with the oxyuris and trichocephalus, and caught some flies whose intestines were full of eggs. Similar results were obtained with the oidium and botrytis. Macrae,²⁴ in India, 1894, exposed boiled milk in different parts of a jail where cholera and flies prevailed. High walls separated the male from the female department. There were no cases of cholera on the female side, but the milk on the male side became infected with

cholera germs. The milk in the cow-shed was also infected.

Lord³⁹ made sections of flies fed on tubercular sputum and found bacilli in the intestines, but there was no invasion of the other parts. On the examination of fly specks the bacilli appeared in the stools within at least 18 hours. Examination of many specks showed that the number of bacilli to a field increased from 3,000 to 5,000 bacilli. About 2,000 specks had been deposited by 30 flies in 3 days; thus from 6,000,000 to 10,000,000 tubercle bacilli had been transferred from the sputum to the inner side of the flies' cage during this period.

Raimbert's²⁴ investigations prove that house flies which live upon flesh and blood carry the poison on their feet, wings, and in their dejections. In 1862 Davaine²⁴ made observations on the spoiling of fruit and vegetables, which he traced to flies that carried the spores of penicillium and mucor, and infected the wounded places on apples, etc. Tizzoni²⁴ and Cattani²⁴ caught flies in cholera wards, secluded them for some hours, took cultures, and found cholera bacilli. Swatchenko²⁴ culturally found spirilla in flies' dejections after 2 hours. Uffelmann⁵ experimented with 2 flies; the first yielded 10,500 colonies, and the second 25.

Hart¹⁴ and Smith¹⁴ cited an experiment by Burgess, who fed flies on bacillus prodigiosus and then allowed them to fly into a large room. After a few hours they were recaptured and made to walk over slices of sterilized potatoes, on which later were found vigorous growths. Smith¹⁷ experimented with house flies walking over alternately sterile Petri dishes, and one with diphtheritic growths; thereby inoculating the sterile.

Veeder¹⁸ made cultures of bacilli from fly tracks and excrements, the flies having fed on the dejections of typhoid and dysentery patients, thus showing the possibility of these diseases being spread by flies. Sangree²⁰ experimented with anthrax cultures on a wingless fly, allowing it to walk over first the culture plate and then over sterile agar, demonstrating the colonies which grew from the same. Ficker³⁰ isolated typhoid bacilli in bodies of flies caught in houses where people were ill with typhoid fever. He experimented to determine how long bacilli would live within the bodies of flies, and found the extreme limit to be 23 days after feeding. Hayward³⁸ fed flies on bacilli contained in tubercular sputum, cultures developing the same.

Chantemesse,⁴³ writing on the propagation of cholera from house to house, makes flies the most important factor. His experiments proved that one could obtain cultures of cholera after 17 hours from the feet of flies and from their intestinal contents. Similar experiments and

results were obtained by Celli²⁴ and Alessi.²⁴ Davaine²⁴ inoculated guinea-pigs with proboscides, legs, and wings of flies removed directly from a jar. The animals died of anthrax. He also fed flies on anthrax blood for 24 hours, then after that sugar water for 1½ to 3 days. Four flies died of anthrax and three survived. He believes that flies are a most important means of spreading anthrax. Proboscides from flies which had sucked upon the erysipelatic leg of a horse were inoculated into healthy horses, and produced effects similar to inoculations made with the excretions themselves, and the proboscides contained bacteria similar to those seen in the wounds.²⁴

Celli²⁴ and Alessi²⁴ proved, both by cultures and by inoculation, that flies' contents give off virulent anthrax bacilli. In their experiments on domestic flies they proved that the *Staphylococcus pyogenes aureus* was unaffected in its virulence by its passage through the fly's intestines. Celli (1888) fed flies with tubercle bacilli and inoculated the anterior chamber of the eye of a rabbit, developing tuberculosis in that animal. Flügge²⁴ experimented with the bacilli of anthrax, typhoid fever, spirilla, and *Staphylococcus pyogenes aureus* and found them virulent after passing through the intestines of the fly. Simmonds⁴ proved that bacilli retained their virulence when adherent to flying insects for an hour and a half after drying.

Swatchenko⁴² experimenting on flies with pure cultures of cholera bacilli, and the bacilli were found in the excreta and bowels as late as 4 days later. When inoculated they were found to be as active as pure cultures. The same results were obtained when the flies were fed on choleraic dejections. Hoffmann³ fed flies on tubercular sputum, and 24 hours after being fed bacilli appeared in the excreta of the flies, and 3 guinea-pigs inoculated with their intestines died with tuberculosis. The presence of plague bacilli in the intestines of flies has been demonstrated repeatedly. Yersin,²⁶ in 1894, noting the large number of flies where victims were being autopsied, crushed one fly and inoculated it into a guinea-pig, which died of the disease in 48 hours. Twelve hours after flies had been infected, Marpmann²⁴ (1897) inoculated their contents into mice. His experiments were not complete, in that although the mice died, not all of them died from the infection. Hayward³⁸ fed house flies on bacilli contained in tuberculous sputum and proved it by inoculation.

To test the virulence of bacilli in specks, Lord³⁹ protected glass jars from direct light. Guinea-pigs were inoculated with 100 specks each, scraped from the flies' eggs at intervals of 1, 8, 15, 28, and 55 days. The first inoculation was made subcutaneously and other intraperitoneally.

The animals were killed after 5 to 7 weeks. Tuberculosis was produced by the inoculated material in the first 3 animals, showing that virulent bacilli were present in the specks for at least 15 days. The pig inoculated with specks which had dried for only 1 day showed generalized tuberculosis. The pig inoculated with the specks which had dried for only one day showed generalized tuberculosis. The pig inoculated with the specks which had dried for 15 days presented large, isolated, tuberculous lesions of the spleen and of two lymph gland, one in the gastrohepatic omentum, and the other in the anterior mediastinum. Tubercle bacilli were demonstrated in these lesions.

An interesting condition which occasionally occurs is due to the ingestion of fly larvæ by human beings. Certain species of the larvæ of flies are capable of reproducing larvæ,⁹ [a] which accounts for the gastroenteric condition with which they are associated. Bachmann¹⁰ found larvæ of the common house fly in the vomitus of a hard drinker, and the same were found by Cohen¹² in the dejections of a nursing infant. Another writer⁹ cites a case in which fly larvæ in large masses were passed in the stools, and a case is cited by Cattle⁵⁰ [a] in which large quantities of dipterous larvæ were passed per annum.

Stiles²⁴ found the eggs of the ascaris in the larvæ of flies.

Disease conditions and associated states accurately observed must be considered scientifically as trustworthy experiments as those done in laboratories. A change in the water supply from foul to pure, with the incident reduction in enteric conditions, demonstrated as positively the source of typhoid fever as any inoculation of pigs.

Not until the Spanish-American War, in 1898, did we realize the importance of the fly question in the dissemination of typhoid germs. The Civil War gave us modern hospital construction, so this latter, the Spanish-American, may result in proper relegation of aerial diffusion of disease, and the placing of diffusion by flies more prominently. Sanitation in the army at this time was not as carefully prearranged as it should have been, and as it was at the time of Moses.⁰ The fly factor was not unknown, and yet no provision was made in the sanitary regulations to prevent the dissemination of the ever-present typhoid fever by these agents. Not only were the contents of the latrines exposed, but the men wandered through the woods defecating indiscriminately.

Quoting from Reed, Vaughan, and Shakespeare's Report on the Spread of Typhoid Fever in the United States Military Camps during the Spanish-American War of 1898,⁴⁸ "Typhoid fever progressed even in those who did not drink the suspected water. Notwithstanding the

purity of the water supply, and contrary to the opinion generally accepted by the medical profession, we find typhoid fever, having been imported into various company organizations, now steadily advanced. The disease is attributed to the fouling of the ground, inevitable in camps, the lack of sufficient conservancy establishments, and the contamination of food through the agencies of dust and flies. . . . Flies swarmed over fecal matter and then visited and fed upon the food prepared for the soldiers in the mess tents. In some instances, where lime had recently been sprinkled over the contents of the pits, flies with their feet whitened with the lime were seen walking over the food."

Not until a spade and an armed soldier were placed at each latrine did the fly menace cease and typhoid fever diminish. As each man defecated, he was compelled, with his spade, to dig up enough earth to cover his excrement, the sentinel seeing that such order was carried out. No sadder, more humiliating, yet successful experiment has ever been noted.

Buchanan⁹ relates an attack of cholera in the Burdwan jail, where the water supply was above suspicion, and the same for all the inmates, who were divided into groups, separated by a high wall. One group had their victuals cooked separately and were fed in separate places. The ones fed close to the latrines, where choleraic discharges were thrown, became infected with cholera, while the other group escaped. It was fly year, and flies were seen to come and go between the food of the inmates and the discharges in the compounds.

1850 the ship *Superb* had cholera on board. She was at sea for six months. On putting to sea flies were in great force, but after a time disappeared, and with them the epidemic. Going into Malta the flies again appeared from the shore and cholera increased. Again putting off to sea, the flies disappeared, with the coincident subsidence of the disease.⁶

Alice Hamilton³² sums up the result of her study into the part played by the common house fly in the recent epidemic of typhoid fever in Chicago, which could not be explained fully by the water supply nor on the grounds of poverty and ignorance of the inhabitants, as the section infected did not differ in these respects with several other sections. The streets in which the sanitary arrangements were worst had the larger number of cases. Flies caught in undrained privies, fences, walls of the houses, and rooms of typhoid fever patients, showed typhoid bacilli in 5 out of 18 cases. Further, she states that when the dejections of a typhoid victim are left uncovered in privies or yards, flies may be an important agent in the dissemination of the disease.

Hewlett⁴⁵ noted an epidemic of flies coincident

with an epidemic of enteric diseases among children, in which the diseases affected alike all classes, under conditions sanitary and unsanitary.

How diseases are transmitted, and the most probable source in each circumstance, have naturally been the cause of much argument. As the science of medicine has become more exact, and as the methods of experimentation allow of more logical deductions, so have some of the opinions once thought worthy lost in favor. Naturally, several channels exist, some always dangerous, others occasionally so.

The possibilities of aerial dissemination of pathogenic germs, once holding the confidence of the profession, has been seriously attacked. How important flies may be in the dissemination of diseases will largely depend upon other existing conditions. The observations referred to herein conclusively prove the possibility of the spread of any type of infectious disease by this insect. It has been aphoristically stated that "the three great means for the transmission of typhoid fever are fingers, food, and flies,"³⁶ and the authors hold the last to be the most important. If this be true of typhoid fever, why not of any other microbic disease?

The part of the fly most active for harm is undoubtedly the portion which most carefully protects the contained microbe from sunlight and desiccation. From the experiments recited the relative danger is as follows: the dejecta, the proboscis, the crushed or ingested insect, and the outside parts.

Scientifically speaking, the number of flies in a community is in direct proportion to the carelessness of its sanitation. The housekeeper will spend a day rummaging over a bed for a bedbug, and give little notice to a kitchen full of flies. "The presence of flies in a house is a reproach, falling away from the high hygienic standard, for the fly is a pestilential fellow."³³[a] Fly epidemics are generally local ones spreading slowly from the source of first infection. Winds, by carrying the flies, allow of spread in their direction. As a working hypothesis, which is both logical and reasonable, one can explain the sporadic occurrence of epidemic diseases, such as remote cases of cholera, which are not native and existing in quarantine. Further, it has been repeatedly asserted that in the zone immediately surrounding a smallpox hospital new cases are more frequent than at a distance. There are two ways to explain this condition—the wafting out of the building of infected particles, or the carriage by flies. The latter seems more probable, for outward drafts are never vigorous, and hardly sufficient to carry a distance.

Every privy, every open window, every dead animal in the street, expectorations of people suffering or incompletely recovered from any in-

fectious disease, the nares of scarlatinal patients suffering from catarrh or acquired colds; in fact, all conditions where pathogenic bacteria or intestinal parasites may openly exist, make possible, and even probable, the spread of disease by flies. This, being known, should be acted upon. There are few Boards of Health as intelligent and far-sighted as that of Philadelphia, which has taken vigorous measures to protect the public against infection of food by flies. Inspectors are directed to visit all milk houses, butcher shops, grocery and candy stores, and instruct the owners to place a covering over all articles. The order reads:⁴⁷ "The chief of divisions of nuisances, milk and meat, and cattle inspectors are hereby instructed to visit all retail dealers exposing for sale in front of their properties meats, fish, vegetables, fruit, candies, and cake and instruct the proprietors that a covering of some suitable material must be provided to protect the goods so exposed from flies and insects generally."

When mosquitos were discovered to have a part in the dissemination of malaria and yellow fever, it was thought that a prevention of their breeding was too great a proposition, yet it has been satisfactorily accomplished, so that now one case of yellow fever in all Cuba will create more comment in the daily papers than at one time an epidemic in Havana. Certainly when the profession and the laity become alive to the dangers incident to the presence of flies, and recognize in them a receptacle and a carrier, then will the problem be attacked and solved.

Attached to all stables there should be built a pit of sufficient size, closed tightly with the exception of a ventilating window properly screened, and so constructed that little direct light may enter. Manure, as soon as dropped from the animal, should be pushed into this pit, and chloride of lime or crude oil frequently scattered over its contents. All organic filth, such as human manure, if conditions do not allow of a sewerage system, should be covered immediately by sufficient earth. All offal and organic debris, in which flies can lay their eggs and propagate, should be disposed of, secluded, or screened. Hospitals, particularly where contagious diseases exist, and rooms containing the same, should have all windows and doors carefully screened, and every effort be made to rid the interior of such flies as may enter. All food, particularly milk and such articles as are eaten uncooked, should receive full attention and protection.

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ASSOCIATION OF AMERICAN MEDICAL COLLEGES.—This Association held its annual meeting May 6th, in Washington. Dr. George M. Kober, Washington, gave the President's address. The topics taken up were: "Giving Credit for Work Done in Literary Colleges; the Combined Course," Dr. Egbert LeFevre, New York; "The Advancement of Medical Education," Dr. Murray Galt Motter, Washington; "Should Examinations for Licensure be in Two Parts, and How Shall They be Conducted?" Dr. William J. Means, Columbus, Ohio; "Teaching Internal Medicine," Dr. William S. Thayer, Baltimore; "Teaching Materia Medica, Pharmacology and Therapeutics," Dr. Torald Sollmann, Cleveland, Ohio; "Teaching Anatomy," Dr. Frank S. Baker, Washington, and "When Shall Students Begin to Attend Clinics?" Dr. Frank E. Bunts, Cleveland, Ohio.

AIR EMBOLISM.—This *bete noir* of surgeons is liable to occur from operations in the axilla, about the base of the neck or the cerebral sinuses, especially when the veins are put on the stretch or general anesthesia is not employed. The accident is marked by a hissing noise and the bubbling of air in the wound. There is sudden heart failure, with a "churning" systolic sound in the heart, irregular respiration and dilated pupils. Convulsions may precede the fatal issue. Nancrede directs to fill the wound with water or blood by a squeeze of a sponge, compress vein with fingers and clamp with forceps; use artificial respiration, lower the head and give strychnine and atropine.—*Denver Med. Times*.

THE THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE (Specializing in Medical Sociology) was held at Atlantic City, on Saturday, June 1, and Monday, June 3, 1907. The program was as follows: (I) The Annual Address, President Casey A. Wood, Chicago; (2) The Communal Life of Physicians; its cultivation and value, Dr. Leartus Connor, Detroit; (3) Symposium: I. The Relation of the Medical Profession to the Housing of the People, Dr. S. A. Knopf, New York City; II. General Aspects of the Housing Problem, Dr. Gertrude C. Light, New York City; III. Discussion, Mr. Lawrence Veiller, New York City; (4) The Effect of Child-Labor on Physical Development, Dr. Alfred Friedlander, Cincinnati; (5) The Superiority of the Playground to the School-room, Dr. Woods Hutchinson, Arrowhead, Cal.; (6) The Soldier as a Total Abstainer from Alcoholic Beverages, Dr. J. W. Grosvenor, Buffalo; (7) Insurance for Defectives, Dr. James A. Spalding, Portland, Me.; (8) Symposium: I. The Relation of the Medical Profession to Legislation, Dr. P. S. Connor, Cincinnati; II. The State Board of Medical Examiners, Dr. Henry Beates, Jr., Philadelphia; III. The Co-relations of the Medical and Legal Professions to the General Public, Dr. T. H. Shastid, Marion, Ill.; IV. The Duty of the Physician in regard to Legislation to Promote Preventive Medicine among the Poor, Dr. Benj. Lee, Harrisburg; V. The Necessity of Co-operation in Movements for a National Department of Health, Dr. J. Pease Norton, New Haven; VI. Criminal Abortion, Dr. H. W. Cattell, Philadelphia.

The position of Junior Assistant Physician is vacant at the Taunton Insane Hospital. For particulars address Dr. Arthur V. Goss, Supt., Taunton Insane Hospital, Taunton, Mass.

Vermont Medical Monthly.

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EDITORIAL.

The evolution in Medical Education has been so rapid during the past few years that unless one has been in a position where his attention has been especially called to it, he has no idea of the conditions that exist, and the influence these conditions have on the physicians of the country, as well as the public at large.

It is not so many years ago that the standards of medical education of Medical Schools were fixed by the faculties. These standards were high or low according to whether the faculties were composed of honest, earnest, self-sacrificing men who were striving to do their duty, or of men who were impelled by commercial motives.

It is easily seen that as a result of these conditions there were a great variety of standards of medical education in the medical colleges.

The Association of American Medical Colleges, together with the American Medical Association have been working for a number of years to improve this unsatisfactory condition by unifying

the standard of minimum requirement for medical schools, and at the same time raise the standard of medical education. To accomplish this these organizations have united in suggesting a course of instruction based on the number of hours of teaching which they think should be required in each subject, as a minimum requirement for instruction to be given by medical colleges.

Again, the states have either by legislative enactment, or state board regulation, fixed state standards of medical requirements which have no reference whatever to the standards suggested for medical schools, and which are as unlike as the standards of the medical schools before any effort was made to unify them. For instance, Massachusetts admits any one to examination for license to practice medicine in the state whether they have graduated from a medical school or not.

Michigan will not admit to the examinations for license to practice medicine in the state, graduates from a medical school that does not give the number of hours of teaching in each subject that is prescribed by the Michigan State Board, regardless of the equipment of the college, the facilities for teaching, or the standard of education maintained.

Colorado will not admit to examination for license to practice in the state, graduates from a medical school whose professors' salaries are influenced in any way by the fees of students, regardless of the number of hours of teaching, or the standard of education maintained by the school.

The object of all these efforts has been to raise the standard of medical education, and to provide for the people of each state better educated physicians—certainly a most worthy object to strive for.

What has been the result of these changed conditions on the Medical Schools?

1st. The number of hours of teaching has been increased very much in each subject.

2nd. Increase in number of laboratory courses.

3rd. Increase in hospital, dispensary, and bedside teaching.

4th. Increase in library, museum, charts, drawings, etc.

These changes have necessitated new buildings to make room for the section work and laboratory work, equipment for the laboratories, books, charts, etc., for the library, and a greater number of men to conduct the laboratory courses, the clinical and bed-side teaching, and the instruction generally which is done in small sections.

All this means an enormous increase in the expense of medical instruction.

How about the income of medical schools?

The higher standards of preliminary education required before beginning the study of medicine, the increased requirements of medical education, together with the various and sometimes illogical requirements of State Boards of Registration, have reduced the number of students of medicine, so that with smaller attendance the income of medical schools, from the fees of students, is materially diminished.

In a word then, the result of these changes on medical schools has been to increase the expense of medical teaching very greatly and at the same time reduce the income from the fees of the students.

During the past year the medical colleges of the United States have been inspected by a committee from the Council of Medical Education of the American Medical Association. The object of this inspection was to determine the relative teaching efficiency of the various schools and to classify them according to this standard.

There were ten points of inquiry in the investigation, as follows: (1) The showing of graduates before state board examinations; (2) requirements and enforcement of satisfactory preliminary education; (3) character and extent of college curriculum; (4) medical school buildings; (5) laboratory facilities and instruction; (6) dispensary facilities and instruction; (7) hospital facilities and instruction; (8) extent to which the first two years of the course are officered by men devoting their entire time to teaching and evidences of original research work; (9) extent to which the school is conducted for the profit of

the faculty directly or indirectly rather than teaching; and (10) libraries, museums, charts, etc. Upon a basis of 10 for a satisfactory fulfillment of each of these ten requirements (100 for perfection), the Council has classified the medical colleges of this country into three groups: (1) Those attaining a mark of 70 or more; (2) those attaining a mark of between 50 and 70; and (3) those attaining a mark below 50. The recommendations of the Council are that schools that receive "above 70 form an accepted list, and it is recommended that the state boards recognize these schools as being up to standard"; that those schools that receive between 50 and 70 "should be recognized, provided that they make improvements which will bring up their work to the necessary grade of 70"; and that those schools that receive less than 50 "should not receive the recognition of state boards."

An examination of the points of this investigation brings out this fact that as much credit is given for the last three points, viz.:—"(8) extent to which the first two years of the course are officered by men devoting their entire time to teaching and evidence of original research work; (9) extent to which the school is conducted for the profit of the faculty directly or indirectly rather than teaching; and (10) libraries, museums, charts, etc.," as for the first three, viz.:—"(1) Showing of graduates before state board examinations; (2) requirement and enforcement of satisfactory preliminary education; and (3) character and extent of college curriculum."

To a casual observer this would not seem to be a fair rating for the medical schools, or one which would tend to raise the standard of medical education.

It is possible for a medical school having a large endowment to have fine buildings with splendid laboratory facilities, fine libraries and museums and have salaried professors who devote all their time to teaching, and yet have a low standard of education, and a large percentage of their graduates fail in competitive examinations. It is also possible for a school with little or no endowment, whose professors receive no pay, except

from the fees of the students, and who devote only a part of their time to teaching to maintain such a standard of education that a very much smaller percentage of their graduates fail in competitive examinations. This condition exists today as shown by the report of the State Board of Registration for 1906, and published in the Journal of the American Medical Association.

It does not seem to us that conditions depending entirely upon endowment should receive the same rating as those depending upon educational requirement and efficiency in teaching, as shown by the standing of graduates in competitive examinations.

There can be no question that a medical school which has an endowment is in a position to give better instruction than one which has no endowment, but a pertinent question at this time is, is it possible for a medical school without endowment to give a satisfactory course of instruction and maintain a satisfactory standard of education?

It is evident that if the classifications of medical schools which have been made by the Council on Medical Education of the American Medical Association is adopted, it will be impossible for a medical school which has no endowment to have a satisfactory rating.

In view of all these conditions there can be no question that the time has come when medical education can no longer be maintained by the income from students' fees alone, but must be supported very largely from an income derived from other sources, and that the medical schools which cannot secure endowments must cease to exist.

Before we go to press again the University of Vermont College of Medicine will have finished the college year and its graduating class will have gone out from four years of hard college labor to a life time of hard, practical work. We wonder if it has ever occurred to these men to compare the advantages they have had in their medical course with the men who graduated ten years ago, or if they appreciate how much more will

be required of them in their practice on account of these advantages. There has never been an age of such rapid advancement in medical knowledge in the history of the world, and the possibilities for men graduating today in the way of achievement and renown are as great, if not greater, than ever existed before. The graduates of the University of Vermont College of Medicine have always been found in the front ranks, and we welcome this forthcoming graduating class to a life of work for humanity, and we predict for them much in the way of achievement and success.

With the recent discoveries of pathogenic spirochaeta a great impulse seems to have been given to the research workers and much light has already been thrown upon the origin of some of our obscure chronic diseases. Time and further study have apparently worked to verify the etiological relation of the spirochaeta pallida in syphilis and now we are hearing much of a spirochaeta found constantly present in malignant tumors. These organisms resemble each other in the fact that they require specially ingenious methods for their demonstration and attempts at cultivation so far have proved of little avail. So little is known of their characteristics that the question of their classification as protozoal or bacterial organisms is still unsettled. If further study proves that these are the actual producers of syphilis and cancer, the question which has puzzled the medical profession for generations will have been solved and a successful prophylaxis and the treatment of these diseases will only be a matter of time, for once given the actual cause of a disease, the means of preventing and the methods of treating must follow. Not only are these discoveries of tremendous importance in regard to the specific diseases mentioned, but they add a zest to the research for the cause of other communicable diseases. The obstacles which have stood in the way of these discoveries for so long seem to have been the fact that ordinary methods of staining tissue and bacteria were entirely incompetent to demonstrate these organisms. The

suggestion is obvious that the research worker much exhaust his ingenuity in perfecting other methods of staining tissues and excretions.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Mrs. George S. Bidwell, wife of Dr. Bidwell of Waterbury died suddenly May 10.

Mrs. Rena Callahan, aged 27 years, wife of Dr. G. M. Russell, died at Lincoln, June 5.

Dr. George C. Rublee of Wolcott, and Miss Florence Sherwin of Cady's Falls, were married May 15.

The board of directors of the St. Albans Hospital have elected Frank A. Manuel of Richford, trustee to succeed Hon. L. C. Leavens, resigned.

The death of Dr. Henry C. Ide of McIndoes Falls occurred in Burlington, June 5. He was the son of Elmore T. Ide, a leading business man of St. Johnsbury, and was 38 years of age. The remains were taken to Barnet for burial.

Dr. John M. Harlow, one of the oldest of New England physicians and surgeons and for 15 years in practice at Cavendish, died recently at his home in Woburn, Mass. He was 87 years old and was considered the wealthiest man in Woburn.

The Franklin County Medical Society held its annual meeting at St. Albans, June 4. There was a good attendance, including many of the representative physicians of the district. The election of officers resulted as follows: President, Dr. F. S. Hutchinson of Enosburgh Falls; vice-president, Dr. A. L. Cross of Swanton; secretary and treasurer, Dr. E. A. Hyatt; delegates to the State meeting, Dr. E. J. Melville of St. Albans, Dr. E. L. Washburn of East Berkshire and Dr. E. M. Brown of Sheldon.

The commencement exercises of the training school for nurses at the State Hospital for the Insane at Waterbury, were held June 6. Dr. Watson L. Wasson gave the address of the occasion and the nurses took part as follows: Essay, "The Trained Nurse in the Public Eye," Miss Julia Loftus; essay, "Not for Ourselves Alone," Miss Frances C. Davidson; demonstration in bandaging, Miss Georgiana H. LaDue, Miss Lois E. McGecin, Miss Herminia Waite, Miss Marion LaDue and Daniel Burleson; class history, Miss Glenna M. McDonald.

The annual meeting of the U. V. M. Medical Alumni Association will be held in the Medical building at 5.30 P. M., Tuesday, June 25, and as usual will be followed by a supper. These gatherings in the past have been extremely pleasant, bringing together the Alumni, old and new, renewing old friendships and making new ones, and serving to bind all the Alumni together in their pride in and love for their Alma Mater. This meeting, coming as it does the evening before Commencement day, should be largely attended by the Alumni living near Burlington, and by those from a distance who are planning to attend the Commencement exercises on the following day.

HEALTH OFFICERS' SCHOOL.

The ninth annual school of instruction for Vermont health officers will be held in Burlington from June 17 to 20, inclusive, according to the following program:

MONDAY EVENING, JUNE 17, 8 O'CLOCK.

Introductory remarks by the president of the State Board of Health, Charles S. Caverly, M. D.

Address: Governor Fletcher D. Proctor.

Address: Walter J. Bigelow, Mayor of Burlington.

Address: F. Thomas Kidder, M. D., member of the board.

TUESDAY MORNING, JUNE 18, 9.30 O'CLOCK.

"Vital Statistics," by Cressy L. Wilbur, M. D., chief statistician, bureau of the census, Washington, D. C.; H. B. Whittier, city clerk, Rutland.

Discussion: H. L. Stillson, Bennington; C. W. Howard, M. D., Shoreham.

"Pure Food," by C. P. Moat, S. B., chemist, State Laboratory.

Discussion: Prof. C. H. Jones, chemist, Experiment Station, Burlington; Arthur Morton, M. D., St. Albans.

TUESDAY AFTERNOON, JUNE 18, 2.00 O'CLOCK.

"Purification of Water," by George W. Fuller, C. E., New York City.

Discussion: F. O. Sinclair, C. E., Burlington; G. F. B. Willard, Vergennes.

"Infectious Diseases," by Thomas Darlington, M. D., commissioner of health, New York City.

Discussion: C. F. Ball, M. D., Rutland; W. T. Slayton, M. D., Morrisville.

TUESDAY EVENING, JUNE 18, 8.00 O'CLOCK.

"Milk Supplies," with lantern slides, by Thomas Darlington, M. D., commissioner of health, New York City.

Discussion: L. P. Sprague, food inspector, State Laboratory; Prof. C. L. Beach, of Experiment Station, Burlington.

WEDNESDAY MORNING, JUNE 19, 9.30 O'CLOCK.

"Disposal of Sewage," by Prof. C. E. A. Winslow, Massachusetts Institute of Technology, Boston, Mass.

Discussion: Prof. J. W. Votey, Burlington; C. W. Peck, M. D., Brandon.

"Work of Laboratory," by B. H. Stone, M. D., director and pathologist, State Laboratory.

Discussion: Hon. C. C. Fitts, attorney general, Brattleboro; F. E. Clark, M. D. Burlington.

WEDNESDAY AFTERNOON, JUNE 19, 2.00 O'CLOCK.

"Duties of Health Officers," by H. D. Holton, M. D., Brattleboro.

Discussion: S. H. Seeley, M. D., Richmond; S. W. Butterfield, Weathersfield.

"Laws Relating to Public Health," by the Hon. Guy Bailey, Essex Junction. Question box.

The Vermont society for the study and prevention of tuberculosis will take charge of the remainder of the meeting, with the following program, Dr. W. N. Bryant, president of the society, presiding:

WEDNESDAY EVENING, JUNE 19, 8.00 O'CLOCK.

Address: "Clinical Diagnosis of Incipient Tuberculosis," by E. O. Otis, M. D., Boston, Mass.

Discussion: D. C. Hawley, M. D., Burlington; S. E. Darling, M. D., Hardwick; W. N. Bryant, M. D., Ludlow.

Annual meeting of Vermont society for the study and prevention of tuberculosis.

THURSDAY MORNING, JUNE 20, 9.30 O'CLOCK.

Address: "Sanatorium Treatment of Tuberculosis," by Frederick L. Hills, M. D., superintendent of the State Tuberculosis Sanatorium, Rutland, Mass.

Discussion: D. D. Grout, M. D., Waterbury; H. H. Swift, M. D., Pittsford.

Paper: "Home Treatment of Tuberculosis," H. H. Lee, M. D., Wells River.

Discussion: J. N. Jenne, M. D., Burlington; W. L. Havens, M. D., Chester Depot.

NEW HAMPSHIRE.

The 116th annual meeting of the New Hampshire Medical Society was held at Concord, May 17. Dr. H. N. Kingsford of Dartmouth College, state bacteriologist, was the first speaker and his subject was "Technique of Blood Smears and the Blood Picture in Pernicious Anemia, Lymphatic Anemia, Leukemia, and Myelogenous Leukemia, with Specimens." The discussion was opened by

Dr. C. J. Woodman of Franklin and Dr. Charles Duncan of this city.

"Some Personal Experiences in Abdominal Surgery," by Dr. A. C. Heffenger was the next paper, and the discussion was by Dr. D. W. Parker of Manchester and Dr. J. M. Gile of Hanover.

"Neurasthenia of School Children," was the subject of a paper by Dr. Louis W. Flanders of Dover, and the discussion was opened by Dr. A. N. Smith of Dover and Dr. Emdom D. Fritz of Manchester.

Other papers were by Dr. G. B. Morey of Manchester and Dr. A. Abbott of Laconia.

At the business meeting the following officers were elected: President, John H. Neal, Rochester; vice-president, John M. Gile, Hanover; secretary, Dennis E. Sullivan, Concord; treasurer, D. M. Currier, Newport; councillors, F. W. Evans, Coos; J. Z. Shedd, Conway; trustees, J. W. Parsons, Portsmouth; delegates to the American Medical Association, W. T. Smith, Hanover; alternate, Ferdinand A. Stillings, Concord; member of the state board of medical examiners, George H. Shedd, North Conway; necrologist, Eli E. Graves, Penacook; anniversary chairman, A. H. Harriman, Laconia.

NEW YORK.

Dr. Sidney Mitchell of Saranac and Miss Maud Marcia Morse were married May 29.

Dr. H. D. Thatcher, of Potsdam has invented a paper bottle, on which patents are now pending. There is a great demand in cities for a bottle which can be properly sealed, and used but once, and Dr. Thatcher seems to have solved the problem. His paper bottle, which will be made in quart, pint and half pint sizes, and is especially adapted for milk dealers, seals with a novel cap arrangement, is absolutely tight, and consequently will keep milk or cream absolutely uncontaminated. There is no such bottle being manufactured today, and as soon as a few minor details are perfected, and the necessary machinery secured, it will be put on the market. The city boards of health are ready to require the adoption of such a package as soon as it can be supplied, and their sale will depend largely on the ability to produce the number required. Dr. Thatcher has been working on this for some years and has apparently achieved the desired result.

Dr. David H. Goodwillie, one of New York's oldest surgeons died May 16, at his home in Yonkers in his 74th year. He had been a resident of Yonkers six years, moving there on retiring from active practice in New York City. Dr. Goodwillie was born at Barnet, Vt., and received his medical education at the College of

Medicine of the University of Vermont and at Edinburgh, Scotland. He was a specialist in diseases of the mouth, nose and throat, and had practised in New York City for more than 35 years.

BOOK REVIEWS.

PHYSICAL DIAGNOSIS with case examples of the inductive method by Howard S. Anders, A. M., M. D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia; Physician to the Philadelphia General Hospital, tuberculosis department; late President of the Pennsylvania Society for the prevention of Tuberculosis. D. Appleton & Company, New York and London.

In this work the author attempts to counteract the growing tendency to rely almost entirely on laboratory examinations of secretions and excretions to the neglect of the thorough and systematic examination of the individual's organs and their functions. He attempts to inculcate the habit of securing as much data as can be obtained by a careful examination of the patient by every means known and secondly to develop the inductive habit by analyzing the observed facts. The aim of the author is a high one and he has been particularly successful in his accomplishment of this purpose.

THE ABDOMINAL AND PELVIC BRAIN WITH AUTOMATIC VISCERAL GANGLIA. By Byron Robinson, B. S., M. D., Chicago, Ill.; Professor of Gynecology and Abdominal Surgery in Illinois Medical College; Consulting Surgeon to the Mary Thompson Hospital for Women and Children of Chicago. 700 pages. Published by Frank S. Bitz Hammond, Indiana.

This book is practically a treatise on the abdominal sympathetic nerves, a resume of views which the author has discussed in current medical literature. Any work which will add to our knowledge of the mechanism and functions of the sympathetic nervous system is to be welcomed. The author has given the subject years of study and his views should be given much weight.

THORNTON'S POCKET MEDICAL FORMULARY. New (8th) edition, revised to accord with the new U. S. Pharmacopœia. Containing about 2,000 prescriptions with indications for their use. In one leather bound volume. Price, \$1.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1907.

It may be said that every practitioner should be sufficiently familiar with his *materia medica* to combine drugs to meet the indications of his patients with no assistance from a formulary. However true this may be theoretically we all

know that in practice none of us can always think of just the best drug to use and the best combination to use it in in every instance. Furthermore we are apt to limit ourselves to a very few combinations. As a reminder and as a means of enlarging our resources such a book as Thornton's is and always will be valuable. The many editions have given the author the opportunity to improve the arrangement until it seems to contain all that so small a book can contain arranged in as admirable a way.

A MANUAL OF OBSTETRICS. By A. F. O. King, M. D., Professor of Obstetrics and Diseases of Women in the Medical Department of the George Washington University, Washington, D. C., and in the Medical Department of the University of Vermont, etc. Tenth edition, enlarged and thoroughly revised. 12mo., 688 pages, with 30 illustrations and three colored plates. Cloth, \$2.75, net. Lea Brothers & Co., Philadelphia and New York, 1907.

A book that has reached its tenth edition needs no introduction to the medical world. No other text book on obstetrics has made such a record. Probably more students have learned their principles of obstetrics from Dr. King's Manual than from any other and it is safe to say that none of them who have fully mastered the contents of the little book have ever made failures as obstetricians from lack of knowledge of the essentials. For a clear, concise and at the same time, comprehensive treatment of all that is important to the accoucher this book is a model.

In reply to the Hon. Clark Bell, president of the N. Y. Medico-Legal Society as to what had been the most notable advance in this department during the past year that has been made in the now almost universally adopted methods of the embalmers of the country in using such fluids for embalming as do not contain poisons that would interfere with the detection of crime. More than twelve thousand undertakers in the United States and Canada now avoid the use of poisons in their embalming fluids that would interfere with the chemist in his analysis of any part of the cadaver when crime was suspected to have been committed by the use of those poisons commonly employed with criminal intent. Three States have passed laws forbidding this use of poisons in embalming. Does embalming by the right brachial artery cause the fluid to enter the lungs of the cadaver embalmed? has been proven beyond the question of a doubt. Thousands of embalmers throughout the country have been interested in this subject, brought up by the unfortunate Patrick case.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

SURGERY.

PARASITIC THEORY OF CANCER.

GAYLORD (*New York State Journal of Medicine*, June, '07) gives some facts observed at the New York State Cancer Laboratory which tends strongly to confirm the parasitic theory of cancer. An animal cage had become infected from sarcomatous rats, and in the course of two years, three cases of sarcoma developed in eight rats kept in this cage. These cases developed a year apart and the cage was known to have been infected for a period of three years. Heredity played no part in these occurrences. Parasiticism is further illustrated by an infected cage which was purchased from a dealer and brought to the State Cancer Laboratory, out of which sixty or more tumor mice had been taken in the course of three years by the dealer, and in which five cases of cancer developed after the cage was brought to the State Laboratory. These facts which point so strongly to the infectious nature of the disease, are further borne out by the almost constant presence of a typical small spirochaeta in all the transplanted tumors. Up to the date of this paper some twenty odd mouse tumors had been cut and examined all giving positive results by the silver staining method of Levaditi. In the more virulent tumors the organisms were present in great numbers distributed in the connective tissue around the margins of the tumors and in the connective tissue stroma. They are occasionally found between the epithelial cells, and are known to have been present in one of the strains of 1905 when they were first detected in large numbers in the vacuoles of the epithelial cells of one of the transplanted tumors. They are now apparently constantly present in three separate strains of transplanted tumors, one being the Jensen tumor and two tumors of American origin. The presence of these organisms is interesting from the fact that they have constantly accompanied these transplanted tumors for so long a period and that in preparations stained in the ordinary way there are no alterations in the histology of the tumors, which can be deliberately attributed to the presence of the spirochaetae.

These organisms have been found in small tumors which do not communicate with the air. These tumors contained large numbers of organisms scattered through the tumor, but most plentiful in the actively growing portions. Here they were found among the epithelial cells, usually surrounded by small vacuoles. They are invariably present in the larger cysts of the tumor, which is an adeno-carcinoma. They are characteristic in appearance, from four to six microns long, with very closely wound, abrupt gyration, each measuring not over one-half a millimeter. Involution forms are not infrequent and fields showing active phagocytosis on the part of the epithelial cells are to be found. In these cells the organisms are found curled into rings or irregular masses making inclusions such as have already been described by Prowazek for the organism producing spirochaetosis in the fowl (Brazil).

By careful examination of the transplanted tumors this organism can be seen in the fresh state. It is very small, very actively motile, moving rapidly forward and backward. It occasionally comes to rest, when the gyrations can be seen, but its dimensions are so minute that neither flagellæ or an undulating membrane can be seen. All attempts to stain this organism with Giemsa or other aniline stains have

been fruitless. In this respect it appears to differ from similar organisms seen in ulcerating tumors described by Loewenthal, and by Borrel in un ulcerated mouse tumors in the Pasteur Institute, and one from Ehrlich's laboratory. Similar organisms have been found by Freudenthal in an un ulcerated human cancer. Loewenthal and Ewing and Beebe have found them in smears from dog tumors, and there is every reason to believe that this organism or similar organisms are widely distributed.

The writer cites some work of Fisher with an isolated spirochaeta in which he was able to induce a proliferation of epidermal epithelial of a rabbit's ear by injections of the organisms. The action was evidently due to some toxin excreted by the organism. This suggests a light roll in the case of these spirochaeta. Much work needs to be done with tumors of human origin.

MEDICINE.

CARDIO VASCULAR DEGENERATION.

ARTHUR R. ELLIOTT (*Medical Examiner and Practitioner*, May, '07), makes the following observations on cardio-vascular degenerations. The morbid histology is found to differ merely in degree and minor featural ways in a wide range of chronic tissue degenerations. Among these we may enumerate chronic nephritis, arterio-sclerosis, chronic lead and other metallic poisoning, chronic alcoholism, gout, syphilis, and the chronic intoxications generally. The secret of this similarity is a common etiology, i. e., toxemia operating according to a common modus operandi, with a similar sequence in the order with which the various tissues react to the morbid irritation. The net outcome of this toxic action upon the body tissues—which may be those of a being young in years—is to produce all the changes which under normal circumstances are found only in old age. This fact stands prominently forth: that chronic tissue degenerations are essentially tissue decay, carrying the individual rapidly and prematurely into the period of senility. It is by no means solely the number of years a human being has lived that makes him old. The period at which the body begins to show the degeneration of age differs greatly, depending, perhaps, to some extent, on inherited tissue disposition, but more upon the insults to which the tissues have been subjected from dissipation, excesses, chronic infections and nutritive disturbances.

As a consequence of such factors resulting from man's environment and mode of living, we find him suffering during middle or comparatively early life from the tissue degenerations which normally belong only to the period of age, and he is liable to die at any age, even in youth, of a disease pathologically the same as senile decay.

The primary, and throughout the course the main, feature common to all the chronic widespread tissue degenerations is the vascular changes.

The cause of the arteritis is contact of the surfaces of the vessels with a vitiated blood, and it is no overstatement to say that it is now accepted that any hematic toxemia, no matter what the circulating toxin be, is capable of setting up nutritive changes in the vessel walls, if long enough continued. The secondary effects of this vascular sclerosis is to produce atrophic changes in the various organs. This is easily understood when we consider that the progressive narrowing of the vascular channels, as their walls increase in thickness and lose in elasticity, diminishes the amount of blood distributed throughout the tissues and as a consequence of this interference with the nutritive supply fibrosis and atrophy follow.

When it is said all persistent disturbances of nutrition and chronic toxemias possess this power, the ground covered will be readily appreciated. One matter of some importance that may with advantage be mentioned is the influence of the infections on cardio-vascular welfare. The point I would accent is not the influence of syphilis, tuberculosis and other chronic infections, for this is familiar ground, but the power of acute infections—those of short duration—to produce and perpetuate serious cardio-vascular mischief. This is a comparatively new subject for investigation, but already we are in a position to affirm, chiefly as the result of the work of Thayer and his associates, that the percentage of arterio-sclerosis and nutritive cardiac defects is higher in those presenting a history of severe infectious diseases than among those in which this history is absent. Rheumatism appears to be the acute infection in which the percentage of arterio-sclerosis is highest, and next to rheumatism typhoid fever. As a consequence of these facts, some stress is to be laid upon the pathogenic role of a past acute infection which was severe though temporary.

The most important and constant of all secondary effects of widespread arterial disease are the changes in the heart. Every case of arterial degeneration is accompanied by certain cardiac effects comprising ventricular hypertrophy, and subsequent degeneration of the heart muscle.

The results of vascular degeneration have been hinted at in the foregoing discussion of its bearing on vital resistance and longevity. As every integral part of the organism depends on the blood stream to furnish it with its nutritive supply and bear away the products of disintegration, so every organ and tissue will suffer in direct proportion as its vascular channels are diseased. The fibroid structural alterations which ensue in most of the body tissue give no hint of their presence, as a rule, except in loss of weight, shrinkage in bulk and diminution in vital activity. Those organs which are classed as end-organs, owing to the terminal character of their arterial supply, are naturally the most sensitive to any interference with the circulation, and manifest structural and functional disturbances earlier as the brain, kidneys, eye and myocardium, and they furnish us with most of our clinical data. Any disturbance of brain function must be looked upon as especially significant, owing to the extreme sensitiveness of the cerebral tissue to local malnutrition. Dizziness, tinnitus, insomnia, headaches, transient aphasia, failure of mental power, are all extremely significant symptoms, especially if occurring in one.

In closing these general remarks on vascular degeneration certain facts as to prognosis may be accented. The individual advanced in life who presents evidence of arterio-sclerosis need not necessarily be regarded as having his natural longevity greatly restricted thereby, provided his habits and hygiene be regulated to harmonize with his increasing physical limitations. The involutional or senile type of arterial degeneration is very gradual in its evolution, and less than other forms is liable to be associated with the complicating element of high blood pressure.

When evidences of cardio-vascular involvement appear during middle life, and especially if they appear in individuals under forty years of age, the outlook is quite otherwise. Under these circumstances the individual's future may certainly be regarded as seriously prejudiced. The arterial and cardiac alterations which antedate the later and normally sclerotic periods of life are much more active in type, produced, as a rule, by some more or less definite toxemia. They are more apt to be associated with hypertension, and to be complicated by some definite

organ dystrophy, such as chronic nephritis, myocarditis, etc.

CAUSES OF ARTERIO-SCLEROSIS.

DALAND (*Medical Examiner and Practitioner*, May, '07), in this country the causes of arterial sclerosis, in the order of frequency, are as follows: (1) excessive muscular work; (2) alcoholism; (3) syphilis; (4) excess in food, especially of the nitrogenous variety; (5) gout; (6) intestinal toxemia; (7) uraemia; (8) excessive mental work, especially in those possessing a neurotic temperament; (9) various infections, such as rheumatism, chronic septicaemia, typhoid fever, etc.; (10) plumbism; (11) nicotineism; (12) long-continued excess in fluids; (13) congenitally weak vascular apparatus, (a) syphilis, (b) offspring of senile parent or parents, (c) unknown causes. Combinations of these causes are not infrequent, especially syphilis, nicotineism, and alcoholism with excessive muscular or mental work.

Clinically, the discovery of an important cause of this disease, which has exerted its influence for a considerable length of time, would lead one to strongly suspect the existence of arterial sclerosis.

ENCEPHALITIS IN CHILDREN.

ART (*Archives of Hygiene*, May), in an article on acute non-suppurative encephalitis in children gives the symptomatology as follows:—Strumpell, in his "Lehrbuch für Specielle Pathologie und Therapie, 1893," speaks of acute encephalitis as occurring in children between one and four. The disease is marked by sudden onset, with feeling of illness and fever. Shortly nausea and vomiting, or general cerebral disturbance in the form of coma and convulsions, may occur. This condition may last one or two days, or it may last one to three weeks. The children may recover from the disease gradually, but paralysis in some form will remain. After the paralysis has existed a while, examination usually shows that both extremities of one side are affected, the arm more than the leg. There are no sensory disturbances. The growth is to a certain extent retarded. The muscles are somewhat atrophied. There is no reaction of degeneration, but almost always more or less muscular contraction. Variations from this course sometimes occur. Children occasionally die suddenly before the diagnosis can be positively made. Chronic forms sometimes occur. In these cases, the initial symptoms may last one or two months. Convulsions occur frequently, resulting from the new inflammatory areas. Strumpell believes this disease is analogous to acute poliomyelitis; the initial symptoms are so similar that in a given case it might be difficult to decide whether a cerebral or spinal paralysis would ensue. In another group of cases, which belongs more particularly to the inferior polioencephalitis group, the acute infectious diseases very often precede the onset of the encephalitis.

In the majority of cases the disease begins in the midst of perfect health, like acute infection, and in the manner already referred to. Convulsions may occur; they may be of the Jacksonian type, or they may be general. The vomiting may be persistent, and the child remain in a febrile, stuporous, or comatose condition for several days. The temperature is variable; the coma rarely complete. At first sight, one is inclined to think of meningitis or perhaps some other acute infectious disease which is in process of development, with decided nervous symptoms; but in a few days the fever declines; the child becomes more quiet, and thus, on the fourth or fifth or perhaps the tenth day of the disease, the paralysis becomes evident. There may be an arm involved, a

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complete hemiplegia, or a crossed paralysis due to a lesion in the pons, as has already been referred to.

At the very outset the reflexes may be diminished, and a generalized paralysis of all of the extremities seems to be present. In several days, however, the unaffected extremities begin to regain their motor function, and later on the child begins to move to some extent the affected arm or leg. At this time the reflexes on the involved side are usually increased, and the Babinski toe sign becomes manifest.

In addition to the symptoms already enumerated on the part of the nervous system may be mentioned the nutrition of the skin, which is affected. It is likely to appear blue on account of capillary and venous stasis in the hand and foot of the affected side. Such an extremity is cyanotic; sometimes slightly edematous; and not infrequently cooler than the limb of the other side. The skin is dry; the sweat glands less active on the affected side. Very often and particularly in the milder cases, the intellect of the child remains practically unimpaired. At other times, where the lesion is extensive, more or less permanent mental deficiency supervenes, even to the production of idiocy. Such a disturbance of motor speech may persist in varying degree. In many cases epileptic convulsions develop from which recovery is impossible.

Schultze first called attention to the fact that deaf-mutism may result from acute encephalitis. He cites the following case:—A two and one-half year old child, healthy, received a blow on the head. The same evening it cried for several hours, and on the following night had convulsions with slight fever. For two days thereafter it was stupid, restless and refused food. On the fourth day, showed some improvement. Ten days after the beginning of the disease it was found that the child was deaf; also that it had slight strabismus; no other paralysis existed. The deafness continued, although the middle ear was normal.

In some of the milder cases, the paralytic symptoms may entirely disappear, and Medin reports a recovery without permanent paralysis. Comby also reports a case in a seven year old girl cured without a trace of paralysis.

Complete recoveries have been reported after slight attacks, usually slight paralysis remaining.

The terminal of the cases may be summarized as follows:—

(1) A small proportion of the cases do not survive, death occurring in the second or third week or as early as the first day.

(2) If the encephalitis occurs during acute infectious disease, death may result from cerebral conditions or from the original disease.

(3) Some cases improve within a few days, without any signs of disease after six or eight weeks. There is always a liability to hemiparesis of one side of the body or to epilepsy.

(4) The majority of cases with initial flaccidity give rise later to the spastic type of hemiplegia.

The diagnosis during the acute stage is nearly always difficult. One is inclined to think of an acute infectious disease, on the one hand, or a meningitis on the other. The diagnosis may be confused with that of a tuberculous meningitis. Spinal puncture in these cases is of but little assistance. If hemiplegia or cranial nerve paralysis occurs, followed by returning consciousness, the diagnosis is rendered comparatively easy. In short, if in the midst of absolute health, or in connection with an acute febrile disease, the child during the first years of life is seized with recurring convulsions, or vomiting, if a hemiplegia results, or if later psychic disturbances, contractures, hemichorea, epilepsy or idiocy develop,

the diagnosis of encephalitis can be made with reasonable certainty.

KOPLIK'S SIGN IN A RECENT EPIDEMIC OF MEASLES.

"Measles is an acute infectious disease, distinguished by a characteristic eruption on the mucous membranes and skin."

It is to the enanthem or eruption upon the mucous membrane that I wish to call your attention. From the period of infection up to the time of the appearance of the enanthem there are no symptoms. With its appearance the patient is apt to feel slightly ill. A mild coryza; an upset stomach; a slight headache; some malaise or a little fever may be noted; and a glance into the mouth will, in a large percentage of cases, reveal the existence of the characteristic eruption. In its early appearances the eruption occurs in discrete spots, rose-red in color, with minute bluish-white centers on the otherwise normal mucous membrane of the mouth. Later, the eruption becomes more diffused, especially over the mucous membrane of cheeks and lips. Still later, when the eruption coalesces, the appearance is that of a diffused redness, with great numbers of bluish-white specks dotting the surface. The appearance of the discrete spots, when recognized, is a very valuable aid in diagnosis, for as they are pathognomonic of measles, the physician has a sure means of anticipating trouble, and the child can be at once isolated and protected. The exanthem may not follow the enanthem for several days, yet when the appearance of the buccal mucous membrane is as above noted, the observer surely can prognosticate the exanthem. The value of an early diagnosis is often of great importance.

In 32 cases occurring in my practice this past winter, the discrete spots were recognized from one to three days before the rash appeared on the skin. In 28 cases, within twenty-four hours of the appearance of the exanthem (either before or after) the enanthem was present, but corresponded more fully to the later appearances, as noted above. (See Figs. II and III of Plate VII of Koplik's *Diseases of Infancy and Childhood*). In 8 cases no enanthem was seen at any time, though carefully sought; the only abnormal appearance being the diffused, more or less dull, red color of the mucous membrane. Of the 68 cases observed, it appears that 88.2 per cent. showed the pathognomonic preliminary sign; and it is my conviction that had the 8 last mentioned cases been observed at more frequent intervals, there would, at some time, have been seen at least a few of the characteristic signs.—P. J. Eaton (*Archives of Pediatrics*, May, '07).

EARLY SIGNS OF MEASLES.

An editorial note (*Semaine Médicale*, Vol. XXVI, No. 47) states that Flesch and Schossberger found on examining the blood of 26 normal individuals that the mononucleated neutrophils with the nuclei more or less deeply indented averaged 36, while those with two lobes averaged 45, with three lobes 15, with four lobes 3 and with five lobes 1. The younger the cell the more even its outline. They also found that in 5 cases of measles the leukocytes with simply indented nuclei were abnormally numerous, amounting to 63, or 71 per cent., and increasing to 80 and 85 per cent, the day before the eruption appeared. In 2 other cases the proportion was 81 and 85 per cent. two days before Koplik's sign was evident. In another case in which Koplik's sign never appeared, the proportion was 60 per cent. four days before the exanthem. Simple examination of the dried blood with the Jenner or tri-acid stain reveals this hema-

tologic sign of measles several days before any other sign. It was first discovered in examining the blood of two children convalescing from scarlet fever, and was a puzzling finding until explained by the development of measles a few days later.—*Journal of the American Medical Association.*

SOCIETY MATTERS.

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Orleans—H. E. Somers, Derby.
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Washington—O. G. Stickney, Barre.
Windham—H. L. Waterman, Brattleboro.
Windsor—M. P. Stanley, White River Junction.

WHITE RIVER MEDICAL ASSOCIATION.

The annual meeting and ladies' night of the White River Medical Association was held May 21, at White River Junction. The public meeting was held at 4 o'clock, and this differed somewhat from the ordinary meetings of this society in past years from the fact that it was more of an educational meeting and was public. This was the first meeting of the kind held by the society, and was an experiment which proved of great interest to those outside the association.

There was a large representation of physicians from the towns along the White River valley. The meeting was opened by Dr. F. A. Smith of Lebanon, who introduced as the first speaker, Dr. E. H. Carlton of Hanover, who spoke on "The Examination of the Eyes of School Children." Dr. Carlton held the close attention of his audience and laid great stress on the fact that children were sent to school too young, and confined there when they should be allowed to run in the open air.

The next speaker was Dr. H. N. Kingsford of Hanover, who spoke on "Vaccination and Whooping Cough." He was followed by Mason S. Stone, state superintendent of education, who gave a brief address. Mr. Stone is a bright, active, wideawake speaker, and was listened to with much interest. Dr. A. F. Smith of Lebanon read a paper on "The Business Side of a Doctor's Life." This paper was particularly interesting. The question of a settled fee for the physician was brought up by Dr. Smith and discussed.

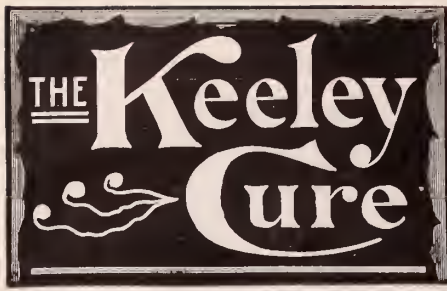


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At the business meeting which followed the following officers were elected: President, H. C. Jackson of Woodstock, Vt.; vice-president, Dr. F. Von Tobel of Lebanon; secretary and treasurer, Marion L. Bugbee of Concord; censors, E. C. Carlton, I. N. Fowler and M. P. Stanley; auditors, G. N. Cobb and M. S. Woodman.

Dr. I. N. Fowler of Lebanon presented resolutions on the death of Dr. George W. Hunt of Cornish Flat, who died March 3, 1907. Among the guests present was Dr. E. S. Eddy, representative of the Vermont State Medical Society, and Dr. Emily Brainerd Ryder of Chicago, and to them the courtesies and privileges of the association were voted.

At the close of the business meeting the members and invited guests repaired to the Gates Memorial library, where the banquet and post-prandial exercises were held. Covers were laid for about forty-five. Dr. Gile of Hanover acted as toastmaster, and the first toast, "Our Lady Guests," was responded to by Dr. Gardner N. Cobb. Dr. Marion L. Bugbee responded to the toast "May we have more and more friends and need them less and less." "To the ministers who don't preach and the preachers who minister," Dr. J. A. Scheuerle; "Every man his own text," Dr. William T. Smith. Former Governor Pingree of White River Junction spoke interestingly in behalf of the library, where the exercises were held, and also the Loyal Club, which served the banquet, as heretofore these annual affairs had taken place in the Junction house. Other speakers who were not on the program were Prof. C. A. Crowell of Lebanon, Dr. E. B. Ryder of Chicago and Mason S. Stone.

THERAPEUTIC NOTES.

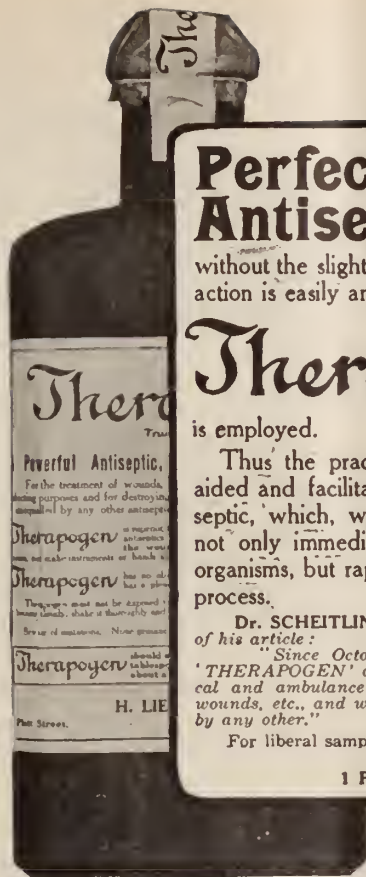
TONSILLITIS.—Inflammation in any form attacking the tonsillar region gives rise to symptoms of most distressing character and at the same time provides a most favorable soil for the entry into the system of other infections. It is well to remember that at first this disease is only a local disturbance and if promptly and efficiently treated will remain local. The constitutional symptoms such as fever, headache, etc., only develop when there is considerable infection taken up. In treatment the first indication is to increase local capillary circulation. A local remedy must fill two requirements, i. e., a detergent antiseptic and a degree of permanency in effect. Many of the remedies which have been advocated for the varied forms of tonsillitis are antiseptic but they are not sufficiently exosmotic in their action to increase the circulation or else their effect is too transient.

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"SPINAL CORD COMPLICATIONS OF ANEMIA."—With increased knowledge of the anatomy and physiology of the brain and spinal cord, there is a growing opinion among careful clinical observers that many of the nervous phenomena accompanying general anemia can be directly attributed to resulting changes in the nervous system. The spinal cord complications of pernicious anemia have been recognized for some time, and it is no uncommon thing in these cases to find pronounced degenerative areas throughout the cord. The posterior columns and occasionally the lateral are most often involved, the nerve fibres being chiefly affected, without however, the extreme shrinking usually observed in locomotor ataxia. While there can be no doubt that these conditions depend to a certain extent on the blood changes incident to the anemic process, it is more



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than probable that the toxins resulting from the attending hemolysis exert direct injury on the nerve cells. The great therapeutic value of Pepto-Mangan (Gude) is well shown by its rapid and pronounced action in these cases of anemia complicated by nervous derangements. With the rise in hemoglobin and the blood count, which immediately follows the administration of Pepto-Mangan (Gude), the backaches and headaches cease, the sensory disturbances disappear, and the patient's nervous system rapidly returns to the normal. The comparative ease with which these cases are restored to health when thus treated, will be exceedingly gratifying to the zealous practitioner. He, more than anyone else, realizes the danger of letting young females thus afflicted drag along indefinitely, for he knows that the psychic influence of long continued sensory disturbance is extremely prone to develop and magnify any hysterical tendencies however latent. Early and efficient treatment is therefore not only desirable but urgently necessary, and Pepto-Mangan (Gude) will never prove disappointing.

TREATMENT OF SCARLET FEVER.—The treatment of scarlet fever is in these days simple. An empty and clean intestine is secured by the use of fractional doses of calomel and podophyllin or similar agents. The sulphocarbolates are given, two or five grain doses, to maintain intestinal antiseptics and calcium sulphide and nuclein pushed to effect. The skin is kept anointed with carbolized or carbonzolated

vaseline. Arbutin is given to secure renal activity with perhaps lithium benzoate. Salines are exhibited daily, and the mouth, throat and nose kept thoroughly clean with an alkaline antiseptic solution. Should the temperature range high at first sponge with magnesium sulphate solution carbolated, epsom salts one ounce, water one quart, carbolic acid ten minims. Very small doses of aconitine at frequent intervals will always control the fever in a case treated as above.—Chandler in *Clinical Medicine*.

Occasionally a doctor becomes a renegade, and a renegade doctor is as bad as, and perhaps worse than, any other renegade. Unfortunately, a rascal who studies medicine usually brings his rascality into the profession with him. These remarks are suggested by a circular of a renegade doctor who prints on his circulars illustrations of his diplomas and certificates. Medical colleges should reserve a diploma whenever its possessor shall disgrace the document by advertising himself or by any other unprofessional or ungentlemanly conduct. This condition should be written into the document, and then every medical college should make efforts to keep track of its graduates and protect its honor.—*Medical World*.

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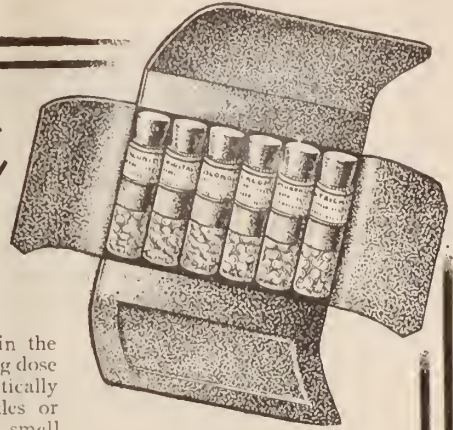
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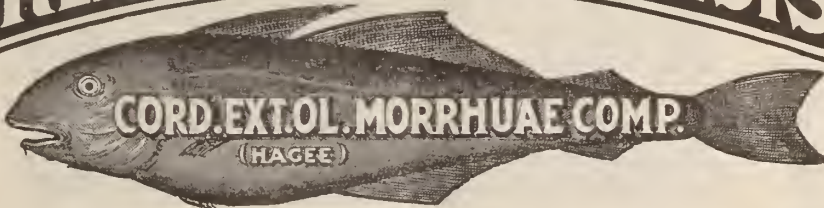
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ORIGINAL ARTICLES.

MEDICAL EDUCATION IN THE UNITED STATES.

WITH SOME FACTS OF THE EXISTING CONDITIONS AND NEEDS AS SHOWN IN THE REPORT OF THE COUNCIL ON EDUCATION MADE TO THE AMERICAN MEDICAL ASSOCIATION AT ATLANTIC CITY, JUNE 4-7, 1907.

During the last twenty-five years medicine has made wonderful progress. During this period it has earned for itself the right to be called a science.

The science of medicine is one of the broadest sciences. It is based on the sciences of anatomy and physiology, physics and chemistry, pathology and bacteriology and pharmacology. For centuries medicine was a mass of empirical facts which acknowledged no limitations and the acceptance of which required a robust faith on the part of both doctor and patient. To-day medicine is a science; it knows its power, it recognizes its limitations and has learned to acknowledge without fear those things which it does not know, and when it makes such acknowledgment it turns the fire and zeal of well-trained minds on these unsolved problems, with the hope and determination of finding their solution.

The benefits conferred on mankind by medical discoveries have already been enormous.

The recognition of the germ cause and resulting control by quarantine of great plagues like cholera, yellow fever and pest, the virtual eradication of smallpox by vaccination, the cure of diphtheria by antitoxin, the relief from pain secured by anesthetics, the prevention of surgical infections by Lister's great discovery, antiseptic surgery, which has made possible the many life-saving operations of modern surgery, the reduction of typhoid fever by a pure water supply—all these have added greatly to the wealth and health of communities and to the happiness and comfort of the individual.

The civilized world can well afford to acknowledge the importance of the accomplish-

ments of modern medicine and to extend to medicine every encouragement and assistance in solving the many problems still in sight.

The cancer problem, tuberculosis—"the great white plague"—pneumonia—the captain of the men of death—scarlet fever, with its undiminished mortality; all these and many more must be conquered and controlled. And in this fight the community must furnish the laboratories and hospitals necessary and train the men who are needed to carry on this struggle of science against disease.

In our own country medicine has so far received little assistance from the state, and, compared with schools of liberal arts and theology, it has received almost no endowments from individuals. And yet no state and no philanthropist can find a better investment than the hospital and laboratories of a modern medical school; none from which the immediate returns are so large, none from which the possibilities of enormous profits to humanity are so great.

Modern medicine requires a better order of intellect and better training than it did twenty-five years ago and better than that possessed by the average student entering its ranks to-day in this country.

The standards of medical education in the United States are very uneven, representing the highest and the lowest types as compared with such powers as England, France and Germany. As a whole, the standard in this country is distinctly lower than in these countries and lower than it should be to meet the requirements of medical science in the present stage of development.

In this country the control of medical education and licensure is vested in the individual states and not in the national government. This has probably been for the best because of the enormous size of our country and the widely varying conditions met in the different sections.

In this country, until comparatively recently, medical education has been in the hands of private medical colleges, conducted by groups of medical men largely for their own interests. In Germany and France the medical school has been developed as a depart-

ment of the university, and, fortunately in this country the same plan is being gradually adopted. It must be said to the credit of American medical schools and American medical men that, handicapped as they have been, without state aid or private endowment and dependent practically entirely on the fees of students, they have accomplished much, of which we may justly be proud.

BRITISH MEDICAL EDUCATION.

In England medical education is in control of the national government through the agency of the Medical Council. The Medical Council determines the standard of preliminary education, the character of the curriculum, the length of the course and the character of the examinations for licensure.

The preliminary education required is about equal to our best four-year high schools and this is followed by a five years' course in medicine, the first year devoted largely to physics, chemistry and biology, and this year can be taken either in the medical school or in a school of liberal arts recognized by the council. Then follow the four years of medicine, given largely as they are in this country, the last year, however, can be taken as a clinical year in a recognized hospital. The examination for licensure can then be taken at the end of this five-year course or it can be taken in two parts, one after the completion of the laboratory years and the second on the completion of the course. As a matter of fact, however, these examinations are so rigid, that the average time required by the student to prepare for them is about six years.

MEDICAL EDUCATION IN GERMANY.

In Germany the student can enter the medical department of a university on leaving the gymnasium or a scientific school. The medical course is now about six years divided as follows: The first year is devoted to physics, chemistry and biology; then follows a four-year course such as is given in our better schools, and then a sixth year, which must be spent as an interne in a hospital. At the end of this time the student can come up for his state examination or it can be taken as in England in two parts, one part after he has finished his laboratory studies, anatomy, physiology, etc., and one after the completion of his clinical work.

The conditions of medical education in this country are not satisfactory. There are too many medical schools. The preliminary education demanded is often insufficient. Many medical schools are conducted purely as business ventures and give an unsatisfactory course, have poor facilities and lack trained teachers, and graduate a large proportion of men who fail before the comparatively simple and fair examinations required by the state boards and are incompetent to practice medicine.

The Council on Medical Education of the American Medical Association, a committee of five composed of Prof. Councilman of Harvard, Prof. Frazier of the University of Pennsylvania, Prof. Vaughan of Michigan, Prof. Witherspoon of the Vanderbilt University, and Prof. Bevan of Rush Medical College, has been studying this question for the last three years. During the last year members of this council made a personal inspection of the medical schools of the United States in order to determine the existing conditions of medical education in this country.

Each school was visited by some member of this committee and was marked as an individual taking a civil service examination on the character of its facilities for teaching modern medicine and its actual work and the results of its teaching as shown by the success or failure of its graduates who come before the state examining boards for a license to practice medicine.

The schools were divided according to their standing into three groups: Group I, in which were placed all the schools above 70, which was taken as a passing mark. Group II, which included the schools marked from 50 to 70. This mark was regarded as not acceptable, but it was considered that the deficiencies in this group might be remedied by such improvements as would bring the standing above 70. Group III, in which the markings were below 50, the facilities entirely inadequate and the work bad.

In this country there are 160 medical schools, about as many as in Great Britain, Germany, France, Austria, Belgium, Holland, Denmark, Greece, Hungary, Italy, Norway, Sweden, Portugal, Roumania, Russia, Spain and Switzerland combined. Great improvements have been made in medical education in this country during the last few years. Until

recently, within twenty-five years, almost all the schools in America gave a full medical course in two years. Now all the schools demand a four-year course.

MEDICAL SCHOOLS IN EUROPE.

Austria	7
Belgium	4
Denmark	1
Great Britain and Ireland	43
France	16
Germany	21
Greece	1
Hungary	3
Italy	20
Netherlands	4
Norway	1
Portugal	2
Roumania	2
European Russia	12
Spain	8
Sweden	3
Switzerland	5
<hr/>	
Total	153

The above figures are approximately correct and are based on the report of the Commissioner of Education, as well as on the report in the book called "Minerva," a yearbook of libraries, colleges and universities, published by Dr. Karl Trubner, Strassburg. It may be said, therefore, that there are in the United States as many medical schools as in entire Europe.

Many schools have increased their requirement for admission and laboratory and hospital facilities until they can now offer as good medical instruction as can be obtained anywhere in the world. A splendid movement to bring up the requirements of the preliminary education of the American medical student to that of the European standard has been started, and about fifty schools have agreed to require, in addition to a four-year high school course, one year or more of physics, chemistry and biology by the year 1910.

THE STANDARD.

In spite of the advances made and good work done by a considerable number of American medical schools, the general average is extremely low. Modern medicine demands a good preliminary preparation and thorough technical training. The standard which should be ultimately generally required is the following: 1, A four-year high school education; 2, one year of chemistry, physics and biology; 3, two years in well-equipped labora-

tories of anatomy, physiology, pathology and pharmacology; 4, two years in clinical work in dispensaries and hospitals, and, 5, one year as an interne in a hospital.

The average student would leave high school at 18 years and graduate at 24 years of age, and to-day it is impossible to acquire a sufficient knowledge of medicine with less preparation. The schools in this country represent all grades from the very highest—the best of our schools are as good as the best in the world—to the very lowest, a large number being little better than diploma mills.

Of the 160 schools only about 50 per cent. are sufficiently well equipped to teach modern medicine. About 30 per cent. are doing poor work and need to make great improvements in their facilities and character of instruction to bring them to an acceptable standard, and about 20 per cent. have no claim to recognition whatever.

It was clearly shown by this inspection that many medical schools are conducted for profit, and that the medical schools conducted solely for the profit of their faculties is a menace to the community and the profession.

There are four night schools teaching medicine in the United States, three in Chicago and one in Philadelphia. It is evident that modern medicine which requires four, five or six years of hard study and work, to which the student must devote the entire day and part of the night, can not be mastered in the night schools between the hours of 7 and 10 p. m., especially when the student has devoted the rest of the day to some other occupation. Many of the poor schools are conducted as quiz classes for the purpose of preparing the student to pass the state board examination and not with the object of making him a competent practitioner.

THE REMEDY.

How can this unsatisfactory condition of medical education be remedied? Two things are necessary: Proper state control and financial support. It is in the power of the public and the profession to enact and enforce laws which will secure proper standards of medical efficiency. A state without the protection of good medical laws, well enforced, becomes the dumping ground for poorly-prepared medical men. The state examining

boards are unfortunately in some states merely political machines.

In this country we need money for medical education. It costs more to educate a student than he can pay in the way of fees. Medical education must secure state aid and private endowment. No better investment can be made by any state than that put into medical research and education. The public must be taught the present condition and the necessities of modern medicine, and philanthropists must be shown that medicine well deserves the support that is given schools of liberal arts, theology, libraries, etc. It is the duty of the profession to secure a high standard of preparation and efficiency of the men who are legally qualified to practice medicine.

THE NEED OF COOPERATION.

The public has a right to demand such state control as will insure its protection against ignorance and inefficiency and will secure for it the services of well-qualified practitioners when they apply for such services, and the public should insist on the legislation necessary to secure such protection.

In the effort to secure higher standards the entire medical profession of America, without regard to the so-called schools of practice, should unite in one common movement to secure the needed legislation and reforms. No attempt should be made by legislation to force the regularly licensed medical attendant on individuals who believed in mental, religious and other means of healing, except in diseases such as diphtheria and smallpox, which are in the control of the state and municipal boards of health and in which the police power is exercised to protect the entire community and applies equally to all classes.

If the public realized the enormous difference that exists between well-trained modern medical service and ignorant, inefficient medical service, they would soon demand and obtain the needed reforms.

The present conditions of medical education and qualifications in this country are not satisfactory. These facts can easily be determined by any one qualified to investigate the subject and should be widely known both to the profession and to the public. Without any sensationalism the profession, the public and the press should enlist

in the effort to secure the needed state control and financial assistance without which it will be impossible to bring medical education and service up to the desired standard of efficiency.

In this country of great wealth and great population and a high average intelligence we can no longer be satisfied with our present standards of medical education, which are so much below those of Germany, France and England. Nor should we be satisfied with any except the highest and best.

SUMMARY.

In brief, the situation of medical education in the United States may be given as follows:

(a) A three years' careful study has been made by the Council on Medical Education of the American Medical Association of the conditions surrounding medical education in the United States. This study included the inspection of all the schools in the United States by one or more members of the Council.

(b) The great advance in the sciences in recent years has created the necessity for a much broader and more thorough education, both preliminary and medical, for the physician equipped to practice modern medicine.

(c) The standards of the medical schools in the United States are very uneven, representing the highest and the lowest types as compared with the standards of England, France and Germany. As a whole, the standard in this country is unsatisfactory and much lower than in those countries.

(d) A modern medical education demands, 1, a four-year high school education; 2, a year of physics, chemistry and biology; 3, two years in well-equipped laboratories of anatomy, physiology, pathology and pharmacology; 4, two years in clinical work in dispensaries and hospitals; 5, a year as interne in a hospital.

(e) The expense for the equipment and maintenance of the modern medical school is greater than can be met by fees paid by medical students. Medical schools, therefore, need endowments in order to meet the demands of present day medicine.

(f) In the United States, until recent years, medical education was mostly in the hands of medical colleges conducted as private institutions, while in Europe it is controlled by the universities. Within recent years, however, some of the medical colleges in this country have secured university connection.

(g) There are still, however, a large number of schools which are conducted solely for profit, and profit is only possible where the college fails to provide proper facilities for laboratory and clinical training.

(h) There are 160 medical schools in the United States alone, as many or more than there are in all the countries of Europe combined. Of the 160 medical schools in the United States only about 50 per cent. are sufficiently equipped to teach modern medicine, 30 per cent. are doing poor work and need to make great improvements, while about 20 per cent. are unworthy of recognition.

(i) If the public realized the enormous difference that exists between well-trained modern medical service and ignorant inefficient medical service they would soon demand and obtain the needed reforms.

(j) A state without the protection of good medical laws, well enforced, becomes the dumping ground of the low-grade medical school with its output of illy-prepared medical men.

(k) To secure better conditions requires two things: Endowments for medical schools and better legislation providing state control of medical practice and licensure.

(l) This country should not be satisfied with medical standards unless they are at least equal to those of other world powers which are our competitors in commerce, arts and science.

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EPILEPSY, ITS ETIOLOGY AND TREATMENT.

By Arthur Morton, M. D., St. Albans, Vt.

We must not regard epilepsy as a disease but as a symptom. Epileptiform convulsions occur in a large number of different diseases for example: Exophthalmic goitre, meningitis, arterio-sclerosis, hydrocephalus, disseminated sclerosis, etc.

When a person has a convulsion due to uremia, we do not speak of that person as an

epileptic, but the convulsive movements are the same and probably the mechanism is identical with that of an epileptic convulsion.

In the study of large numbers of so-called epileptics we are able to classify them into groups: In one group we put all the syphilitics. In another those patients who have suffered from hydrocephalus, in another those who have convulsions due to arterio-sclerosis and so on until we have only a small group of patients who come under the head of idiopathic or true epilepsy.

I venture to say that in a few years we will not even have this group, as our methods of pathological research improve it will probably be found that the so-called idiopathic epilepsy is some form of a chronic encephalitis or a degeneration of certain cells of the brain. In seeking the cause for a given case of epilepsy two factors must be taken into consideration: first the predisposing cause, second the exciting cause. In some cases it will be found that the predisposing cause is the chief factor in the development of the disease while in a few cases the predisposing cause enters into the causation very slightly if at all.

We can very easily see how a perfectly healthy man might develop epilepsy from a severe blow on the head which might or might not produce a gross organic lesion of the brain.

The most important predisposing cause of what is termed idiopathic epilepsy is heredity. By this I do not mean that the patient's parents must necessarily have suffered from epilepsy but if a careful study of them could be made, in each case, some form of nervous unbalance would be discovered in the majority of instances.

The child then inherits a weak nervous system. Not every child that inherits a weak nervous system is doomed to suffer from epilepsy by any means. He may live to a ripe old age without ever having a convulsion providing an exciting cause is not encountered. On the other hand the child may develop convulsions from causes which would have little or no effect on a child with a strong nervous system. How many times do we get a history of convulsions developing after a slight fall or blow on the head.

Now hardly a child lives but what has received blows and bumps on the head, yet if

they are strong healthy children they suffer little if any harm. We might go on in this way with other exciting causes such as worms, teething, indigestion, etc., causes from which a large number of children suffer but which as a rule produce no permanent ill effects.

I do not wish it to be understood that I believe every case of epilepsy must inherit a weak nervous system although I believe this to be the cause of a great majority of the so-called idiopathic cases. The exciting causes which are usually given seem altogether too slight in most instances.

It is however easy to understand how some of the exciting causes might be severe enough to produce changes in the brain that would result in an unbalanced condition between the motor and sensory cells. This is especially true in cases of direct injury to the brain, in brain tumor and possibly so in some very severe cases of scarlet fever, measles and meningitis.

Trauma produces epileptiform convulsions in only a small number of cases, although it is given as a very common cause. In the study of eight hundred and forty-five cases admitted to the Massachusetts Hospital for Epileptics only twenty cases or 2.4% were probably due to injury to the head, and among these twenty cases a number were probably predisposed to the disease. Children are very apt to have convulsions, irritations which in an adult would cause a feeling of discomfort or at the most a chill within a child produces convulsions.

This is seen very frequently during some of the acute diseases of childhood. These convulsions are very dangerous, for when the brain has once sent out the nervous impulses which produce a generalized spasm, it is very much easier for it to do so again and it will very soon develop the convulsive habit. A child who has had convulsions during infancy due to worms, teething or other reflex causes should be carefully watched during the second dentition and also during puberty as at their periods the convulsions are very apt to develop again.

There are many other conditions which produce epileptiform convulsions, but I shall only mention a few of the most important.

Syphilis may be a predisposing or an exciting cause. In some cases we find gummata

while in others we can find no macroscopic changes.

Localized lesion of the brain which may have been present during infancy or have developed at any time may produce either localized or general convulsions. Certain brain centers which are inactive during infancy and childhood, may be more or less affected at birth, but still the convulsions may not develop until puberty or later when these centers are called into activity.

TREATMENT.

Before beginning the treatment of a case of epilepsy the physician should make a careful physical examination. All the organs of the body should receive attention.

The eyes should be examined for errors in refraction and for muscular unbalance; the nose and throat should be examined for polypi and adenoids; the genitals should receive careful attention. The urine and stomach contents should be analysed. The blood should be examined and in fact every effort should be made to find some exciting cause.

The patient should not be made to think that he is an invalid and not able to work, but care should be taken to give him some steady employment and to train him so that he will become a useful citizen.

Children should be taught to read and write and should be given some form of manual training which will keep them in the open air as much as possible. Their government should be kind but firm.

Most epileptics suffer from a loss of inhibition and are apt to act as their emotions prompt them. A great deal can be done by proper training to overcome this fault.

The patient should be treated as nearly as possible as any of the healthy members of the family. He should not be made to feel that he is different from the other children. He should be allowed to take part in the games and enjoy the pleasures of childhood as far as his malady will allow. His illness should not be constantly talked of in his presence nor should he be allowed to brood over his affliction. His parents and physician should encourage him in every way. Much can be done towards aborting a threatened convulsion by sheer will power and the patient should be taught to use all his power to resist the onset of a fit. I

have known of cases of brain tumor where the patient was even able to abort convulsions by this means.

There are many methods to stop the onset of a convulsion in use by patients some of which depend somewhat on a physiological basis, while others depend to a great extent on the physical effect. Among these methods might be mentioned the tying of a ligature around the limb in which the aura begins, rubbing the limb, taking a pinch of salt and drinking a glass of water.

If a patient has discovered that he is able to abort a fit by any means, he should be encouraged to use it, although at first thought it may seem a silly and useless procedure to the physician. The use of suggestion in epilepsy is a means of treatment which is very valuable and one which is neglected many times.

The diet of epileptics should be carefully regulated in regard to the quantity and quality of food. A mixed diet may be used in the majority of cases although each individual should be carefully studied and anything that proves harmful should be prohibited.

Epileptics as a rule may eat good beef once a day. Eggs soft boiled, milk, bread and butter and a small quantity of potato should constitute the chief articles of food, although a small quantity of fruit and fresh vegetables may be allowed if they are not harmful.

The greatest care must be exercised to see that the patient does not over eat. This is a fault that is very common among epileptics as a class and I believe it to be one of the principal exciting causes of convulsions. The patient must be taught to eat slowly and properly masticate his food.

The hygienic surroundings of the patient should be as nearly perfect as possible. He should have plenty of out door exercise and the skin should be kept in good condition by frequent baths with brisk rubbings.

Nearly all epileptics suffer more or less from indigestion usually caused by a chronic gastric catarrh. This condition is brought about in most cases by the eating of large quantities of poorly masticated food and the taking of large quantities of the bromides.

The condition is best treated by frequent washings of the stomach and the use of the bitter tonics before meals and hydrochloric acid during the meals.

Other patients suffer from an over secretion of the gastric juice. In this condition the bitter tonics should be avoided and such drugs as the alkalies, belladonna and hyoscyamus should be used. The patient should also be given a diet rich in albuminous foods. A careful gastric analysis should be used in every case as many times it is impossible to diagnose the condition without this aid.

The patient's bowels should receive attention and if there is constipation this should be treated. It is better not to use too much medicine but to rely more on hygienic methods as exercises—massage—diet, regular habits, etc., still in some cases it is necessary to use cathartics and one of the best is the fluid extract of cascara. If it is possible to foretell about the time of the next convulsion it is a good practice to give a full dose of magnesium sulphate about twenty-four hours before. If there is much intestinal fermentation powders of salol and bismuth subnitrate should be given.

To control the unbalanced condition of the cortical cells we have no drugs that give as good results as the bromides. The bromides have however done a great deal of harm. The continual use of large doses produces chronic gastric catarrh, mental stupor and irritability. Most patients who are admitted to a hospital for epileptics are suffering from bromism. They have either taken large quantities of patent medicines or have been given a prescription and have increased the dose so that they may be taking two or three drams a day. From five to ten grains of bromide given three times a day is usually enough. I prefer the sodium salt as it is less likely to derange the stomach. It should be taken well diluted with water or milk after meals.

If the patient has only one convulsion every one or two weeks he may be given sixty grains of sodium bromide after each meal the day before the expected attack or if the patient is in the habit of having series of convulsions it is justifiable to give him large doses of the salt repeated every two hours until the convulsions are controlled. It is a good plan to precede the administration of the bromides in these cases with a large dose of magnesium sulphate.

If large doses of the bromides have been given every day for a long period the salt has little or no effect in controlling series of convulsions or status.

Fowler's solution given in the dose of three minims three times a day will often prevent the bromide acne.

In cases of epilepsy, occurring in old people who have a weak heart, digitalis combined with the bromides acts very nicely. In cases of arterio-sclerosis nitroglycerine and potassium iodide are of use.

In cases of syphilis with convulsions large doses of potassium iodide should be used and if there is any evidence of a gumma mercury should be combined with it.

In cases of nocturnal epilepsy chloral in the dose of five to ten grains combined with the bromides is often very useful.

The best drug we have in cases of petit mal is belladonna. This should be combined with the bromides.

The Flechsigs treatment of epilepsy consists of giving the patient a grain of the extract of opium a day and gradually increasing the dose until fifteen grains are taken each day. The opium is continued in this dosage for about six weeks when it is withdrawn and large doses of the bromides substituted. The dose of the bromides is gradually decreased until at the end of two months only thirty grains are taken daily. I have used this method on several cases but have not had very good results although some observers have reported cures through its use.

The hypochlorization method of treatment or as it is sometimes called the "salt poor diet" consists in substituting sodium bromid for the sodium chlorid in the patient's food. The claim is made that the bromid salt is rapidly absorbed and becomes part of the body tissues when administered in this way. This method of treatment acts very well in certain selected cases, but cannot be used as a routine measure. It is practically useless in the middle grade of epileptics, as they have neither the will nor the desire to carry it out properly. The craving for common salt is intense and patients will do almost anything to obtain it.

This method of treatment may be used with success on intelligent patients and with some idiotic and demented patients whose diet can be absolutely controlled.

Among some of the other drugs that are sometimes useful might be mentioned solanum carolinense, acetanilid, borax and silver nitrate.

We should all remember however that drugs alone will seldom if ever cure a case of epilepsy. In order to get results the physician must bring to his aid diet, mental suggestion, hydrotheraphy and hygienic measures of all kinds.

TRICHINOSIS.

By C. H. Beecher, M. D., Adjunct Professor Theory and Practice of Medicine, University of Vermont College of Medicine, Burlington, Vt.

DEFINITION.

The term trichinosis is applied to the group of symptoms resulting from the introduction into and the subsequent development in the body of the parasitic round worm, the trichina spiralis.

HISTORICAL.

The parasite was first described in 1835 by Owen. In 1860 Zenker discovered at the autopsy of a case, which was supposed to have been typhoid fever, that the parasite was pathogenic, and it was demonstrated by a series of investigations that the disease was acquired by the human subject from eating the meat of infected pigs.

Since that time many epidemics have been recorded, the largest being in Prussia in 1883, in which 403 persons were affected and 66 died. The largest American epidemic was in Colrain, Mass., in which 50 were affected, with four deaths. The only other American epidemic of any size was in Minnesota, in which fifteen were inflicted. The American reports are usually of outbreaks in a single family or else of sporadic cases. It is estimated by Stiles that 900 cases have been reported in America since 1860.

PARASITE.

The muscle, encysted or larval form of the trichinae spiralis is microscopically familiar to most of us. They are well shown in the accompanying microphotographs of muscle taken by Mr. Percy Carpenter of the State Laboratory. They are (1-40-1-25 in.) 6-imm in length and .005 mm (1-5000 in.) in diameter. They lie coiled in an ovoid capsule or crust, which is at first translucent but later becomes opaque from infiltration with lime salts. The

adult or intestinal trichinae are slightly larger than the larval or muscle form, the female being 3-4 mm (1-8-1-6 in.) in length and the male 1-2 mm. (1-16 in.) Most of the body of the worm is occupied by the organs of generation.

LIFE HISTORY.

If a piece of flesh containing the encysted trichina is eaten, the cyst wall which surrounds the parasite is digested and the trichina set free. They then pass quickly into the intestine where they become sexually mature. Impregnation is effected at the end of one or two days after which the male worm dies and the female grows rapidly to three or four times her original (muscle) size. She attaches herself to the intestinal wall and the embryos are discharged directly into the lymph spaces of the intestinal wall. The first of the young trichinae are born from the sixth to the ninth day after infection. The parent worm continues to give birth to her young during the following five or six weeks, producing hundreds (10 to 15) of them and finally dies and is voided. The young trichinae after being discharged into the lymph spaces of the intestinal wall are transported by the lymphatics and blood vessels to the muscles. The process of migration from the intestine to the muscle takes but a short time for each individual parasite, but it continues during the production of the young in the intestine (5-6 weeks) varying with treatment, symptoms, &c. Once in the muscle they gradually become encapsulated, but whether the capsule is formed by a secretion from the trichinae or from the exudate which its presence causes is still under discussion. The process of encapsulation takes from three to four weeks. The infiltration of the capsule with lime salts renders the cyst visible. This infiltration with lime does not take place as readily in the hog as in man; taking four to eighteen months in man and years in the hog. Therefore the parasites are not as a rule visible in infected pork, even pork which is swarming with the parasites being as a rule normal on macroscopical examination.

Within the muscles the parasites do not undergo further change. Once encapsulated the trichinae may retain their vitality for long periods,—twenty to thirty years, but eventual-

ly however they die and undergo fatty degeneration or become calcified. Trichinae are very resistant to external influences outside the body. Trichinae which had lain in putrid meat one hundred days were still alive. In the usual curing solutions and after smoking they often survive, having been found alive after fifteen months in pickle. They resist the freezing temperature for two months and as low as—4 F for three days. They have survived as high temperature as 180 F but are usually killed at once at 140 F. They resist lower temperature for a considerable length of time.

INCIDENCE.

Man is infected mainly by eating the flesh of trichinized hogs. The distribution of the parasite is due more to the habits of the people in regard to pig-keeping and pig-feeding than any other factor. In hogs it is more common than is general supposed. In America the per cent. has been variously given from .4% to 14%, being more frequent in city than in country kept pigs. Two per cent. is probably a fair average, that being the usual per cent. given as to the number of carcasses found infected where thousands are examined for exportation.

The frequency with which rats are found infected, up to 100% according to the locality, is of extreme importance in the spread of the disease. It is very likely that infected rats which are sick and feeble may be killed and eaten by pigs. Anyway rats are cannibals and so dispose of their old and sick and thus would continue the disease.

In 505 unselected human autopsies the parasites were found in 27 cases (5.3%). These cases had all died from causes other than trichinosis. Whether they had showed any symptoms of trichinosis is not stated.

I have not been able to find any recorded cases in Vermont. The only mention of the subject which I have found in this society's records, the transactions back of '92 being kindly placed at my disposal by Dr. D. C. Hawley, is in "The transactions" of 1878 that a paper on "Trichinosis" was read at the annual meeting, that year by Noah Cressy, M. D., V. S., of Amherst, Mass. The paper dealt mainly with the appearance of the parasite, its life history and the lesions produced by its presence in the body. There is

in the paper little discussion of symptoms; no treatment, either prophylactic or of the condition; and no record of cases.

Knowing that C. W. Stiles, of the U. S. Public Health Service, some years ago compiled the cases for this country, I wrote him asking if he had records of any cases in Vermont. He replied that in examining his notes on the subject that while he found cases reported for New Hampshire, Massachusetts, New York and Canada he did not have any record of any cases in Vermont. I also wrote the Secretary of the State Board of Health, Dr. H. D. Holton, asking if there had been any cases reported to the board. He replied that the *only ones* were those of which this paper is a study.

From the occurrence this last winter of a family outbreak of six cases of the disease in Bristol and the presence of an epidemic of sixteen cases in Hardwick, I believe that the disease is more common in Vermont than the absence of reports indicates, and consequently of more importance than has been accorded it.

PATHOLOGY.

In the alimentary canal the parasites produce irritation and inflammation of the wall. This is due to their migration through the wall and possibly also to the presence of a toxin which is liberated by the rupture of the cyst containing the parasite. The excretions of the parasite may also be toxic.

In the muscles they cause an inflammation which can not be distinguished, except by the presence of the parasite, from the myositis caused by other irritants. The parasites have a preference for certain muscles, the diaphragm being most subject to invasion, next the intercostals, muscles of the tongue, neck, eye and larynx. In the extremities they are most frequent in the biceps and triceps. In the larger muscles they are most numerous near the junction of the belly and tendon of the muscle.

The heart muscle is usually free. The only smooth muscle in which they are found is that in the wall of the intestine. They are occasionally present in the fat.

The number of trichinae found in different cases varies widely. In some cases they have been estimated at millions. Usually infected human beings contain more trichinae than the animal from which they were infected. There

is no constant relation, however, between the number of trichinae present in the body and the severity of the symptoms; predisposition playing an important part in determining the reaction of the individual to the infection.

SYMPTOMS.

The symptoms in a typical case of moderate severity are usually divisible into three stages, each stage corresponding to a phase in the life history of the parasite. These stages are: (1) *The stage of Gastro-Intestinal Irritation*, corresponding in time to the liberation of the muscle forms from their capsules; their growth, development and sexual activity; and to the penetration of the wall of the alimentary canal by their brood of young; (2) *The Stage of Myositis*, produced by the invasion of the muscles by the migrating young trichinae; and (3) *The Stage of Subsidence*, corresponding to the encystment of the embryos in the muscles and the diminution of the myositis. Depending on the individual attacked, and to a lesser extent on the number of parasites present, these stages are well or ill defined. Some cases are seen with only the symptoms of intestinal irritation, others with only vague rheumatoid pains as evidence of infection and probably there are some persons attacked who give no evidence of the infection by the presence of symptoms. If the amount of infected meat is large and many parasites are liberated the symptoms of gastro-intestinal irritation are apt to appear early, within a few hours from the ingestion of the infected material, and are probably caused by the presence of a toxic substance which is liberated when the capsule is digested.

These symptoms (gastro-intestinal), are foul breath and tongue, anorexia, nausea, vomiting, abdominal pain which is colicky in character, with diarrhoea, and perhaps cramps in the muscles, and cold extremities. The temperature is usually moderately elevated and sweating may occur. Edema is usually present, a case of this type resembling an attack of cholera morbus, or ptomain poisoning. These early symptoms are more apt to occur in children than in adults, and while they may be severe enough to cause death, cases with them are more apt to run a favorable course as the vomiting and diarrhoea rids the alimentary tract of many, and probably in some individuals, of all of the parent trichinae before the embryos

are born. Symptoms are by no means constant as early as indicated but may be delayed until the end of the first week, when the embryos are being born and are penetrating the wall of the intestine, or until a larger amount of infected meat is eaten than has been usual. If late they are rarely severe and may amount only to a general malaise.

From the seventh to the tenth day after infection, with some of the symptoms of the first stage persisting, the symptoms of migration of the embryos to the muscle sets in, and gradually increase in severity. Muscular pain and weakness are the prominent subjective symptoms of this stage. The pain is rheumatic in character, being increased by motion or pressure. The affected muscles are tender, swollen and tense to the feel and the skin over them becomes edematous. The involvement of the diaphragm and intercostals causes dyspnoea; of the muscles of the tongue and pharynx, difficult in deglutition; of the larynx, hoarseness or aphonia; of the ocular muscles, pain on motion of the eye; and of the cervical muscles, stiffness of the neck. The flexor muscles of the limbs are more involved usually than the extensors and the limbs assume the position in which the muscles are under least tension.

The edema of the disease is very characteristic. It appears first usually about the latter part of the first week involving the face and particularly the eyelids. This early edema usually disappears in a few days. As it often occurs before the embryos are born it is probably due to the toxemia. Later when the swelling and stiffness of the muscles is at its height (second or third week) edema occurs over the affected muscles. Here the edema has been ascribed to thrombosis of the veins or obstruction of the lymphatics. It has the characteristics of an inflammatory edema. It is not present in the scrotum or labia. In the late stages of the disease, with failure of the heart, edema occurs in the dependent parts.

Fever is usually present throughout this stage depending to some extent on the amount of the myositis. It is usually remittent or intermittent and of a moderate height. The pulse corresponds to the temperature. Chills are uncommon though chilliness is usually present. The urine is diminished in amount and is high colored when the fever is high. There may later be polyuria. Albuminuria and tube casts

may be present. Sweating is common and is usually profuse. Pruritus, hyperesthesia, and anesthesia of the skin are often present. In some cases there are spots which look like the typhoid eruption. Emaciation and anemia are usually marked in the protracted cases and in fact all the symptoms of the typhoid state may be present. The conjunctivae may be red and inflamed: Insomnia, due to the pain, is a common and distressing symptom, although children are apt to be drowsy throughout the disease. In many cases there are signs of bronchitis or hypostatic pneumonia. Much fluid accumulates in the air passages on account of the weakness and involvement of the respiratory muscles.

The blood examination is of extreme value in the diagnosis of the condition. A marked leucocytosis is present and is usually in proportion to severity of disease. The increase in the white cells may reach 30,000 or more. The increase is especially marked in the eosinophiles which normally number 2% to 4% of the total leucocyte count. In this condition they often comprise 30% to 50% of all the leucocytes and have been reported as high as 83% of the total leucocyte count. Eosinophilia occurs in some other conditions but none of them bear any clinical resemblance to trichinosis. The eosinophilia is most marked as a rule in the mild cases and least in the severe ones. The increase is gradual and is at its height when the muscular symptoms are, second and third weeks. It may persist for months after an attack.

The duration of the symptoms depends on the severity of the infection and whether or not the muscles become involved; in mild cases recovery is complete in ten to fourteen days; in the severe forms six to eight weeks may pass before the symptoms are relieved. Convalescence is unusually slow; muscular pain, weakness and stiffness being common and may persist for a long time, in some cases for years.

PROGNOSIS.

Death may occur in the first stage of the disease from collapse produced by the toxic material and the extreme purging. Generally it does not occur until the myositis is at its height. It is often the direct result of involvement of the respiratory muscles. The majority of deaths occur before the sixth week.

Exhaustion, pneumonia and other complications may cause some of the late deaths.

The mortality varies and has ranged from 1% to 30% in the various epidemics. Early diarrhoea and vomiting are favorable symptoms as they rid the patient of many parasites but a persistent and profuse diarrhoea is often a direct cause of a fatal collapse. The presence of persistent high fever, of severe and widely distributed muscular pains, of extensive involvement of the respiratory muscles and of intense nervous symptoms are all of bad prognostic value. Children bear the disease well.

DIAGNOSIS.

The early recognition of a sporadic case or of the first case in an outbreak is not usually an easy task. When, however after a period of gastro-intestinal irritation, there appear muscular weakness and pain, with local edema, especially of the eyelids, the possibility of trichinosis must be considered. If a history of eating raw or undercooked pork can be obtained and some of the remaining meat examined the diagnosis should not be long in doubt. The examination of a stained blood slide with its eosinophilia would clinch the diagnosis. Microscopical examination of the stools is rarely of much value but the embryos may be found.

The examination of a bit of one of the affected muscles from the patient with the finding of the parasites puts the diagnosis beyond question. Owing to the wishes of the patient and often to the inaccessibility of the muscles affected and also often to a scarcity of the parasites in the muscle this method is not so generally useful as would seem at first thought. When done it should be under local anesthesia with an open incision and not with a harpoon or trocar.

The sporadic cases, or the first cases in an epidemic are usually confused with cholera morbus, typhoid fever, meningitis or rheumatism; the epidemics with typhoid fever, when the cases appear successively, or meat or ptomain poisoning when any number are stricken at the same time.

The cases with sudden onset are hard at first to distinguish from *cholera morbus*, but the protracted course with the characteristic edema and muscular symptoms should raise

suspicion of other trouble and the blood slide or muscle examination would decide the question.

The cases that set in gradually, with prostration, anorexia, diarrhoea and fever, with possibly suspicious spots and an enlarged spleen are very suggestive of *typhoid fever*. The absence however, of the Widal reaction and the presence of edema and muscular pains, with the pulse in proportion to the temperature, should suggest a further blood examination which would show a leucocytosis and eosinophilia.

Rheumatism is undoubtedly the diagnosis in some cases of trichinosis but the fact that the pain and soreness are in the muscles, the number of muscles involved, with the preceding gastro-intestinal irritation and the associated edema should suggest the blood or muscle examination.

The microscopical examination of the remaining meat in *suspected meat or ptomain poisoning* should help throw light on these cases. Moreover the symptoms of ptomain poisoning appear sooner and run a rapid course with more depression of the nervous system and with absence of the edema and muscular symptoms of trichinosis. There is in ptomain poisoning no leucocytosis and no eosinophilia.

Occasionally a case of trichinosis with fever, delirium, hyperesthesia and muscular rigidity make one suspicious of *meningitis* especially if the muscles of the neck are markedly involved with retraction of the head; but the history of the case with the presence of edema and eosinophilia with a negative lumbar puncture should help in the differentiation.

PROPHYLAXIS.

(a) *In Man.*—As most pork is from fairly young hogs the encysted trichinae are not calcified and the pork is normal in macroscopical appearance. The only satisfactory prophylaxis, except abstinence from eating pork and its products, lies in their *thorough cooking*. Pork in any form should certainly not be eaten raw. To ensure the killing of the parasites the meat must be subjected to a temperature of at least 140 F long enough to coagulate it. It is stated that a twelve pound ham does not attain this temperature in the center after three hours of boiling. The sufficiency of cooking may be determined by the clear gray color of a cut surface and the ab-

sence of red juice under the pressure of the knife. Meat known to be infected should not be used for food in any form, for the reason that the parasites may escape being killed in the cooking. The infected meat should be burned or else used in the making of glue, soap or fertilizer. It should never be left where any of the susceptible animals, especially dogs and rats have access to it. The stools from a patient with trichinosis should be disinfected and disposed of as carefully as if from a typhoid fever case.

The *thorough salting* of the pork slowly kills the trichinae, taking up to two months to destroy those in the center of a large ham.

Hot smoking at 140 F. to 150 F. for twenty-four hours, kills the trichinae, while cold smoking is very much less effectual. Evidently the virtue is in the heat and not in the smoke.

Microscopical examination of pork intended for food is not so absolute a protection as thorough cooking. To be effective the work must be universal, uniform and thorough. Inspectors grow careless, some carcasses are smuggled past the inspectors, and more important, the worms are often unequally distributed through the muscles, all these factors combine to make inspection inefficient. I believe that systematic microscopical inspection in the United States is only done on the pork intended for export to those countries, (especially Germany) which refuse to receive it uninspected. It is stated that no undoubted case of the disease has ever arisen in Germany from eating American pork which has passed inspection. However, this may be as much due to the smoking and curing as to the inspection. On the other hand more cases of trichinosis occur in Germany from eating inspected native pork, (which is rarely trichinous) than occur in the United States where inspection for home consumption is seldom done and where trichinosis in hogs is more prevalent. In the seventeen years (1881-1898) there occurred in Germany 2,042 cases, with 112 death (1-3 total number of cases) from eating native inspected meat which was passed as trichinae free. The *total number* (900) of cases reported and estimated in the United States is less than half that number. The discrepancy is explained partly by the habit of the Germans in

eating raw pork. It is also conclusive evidence, of inefficient inspection.

Inspection of the pork used in Vermont would be practically impossible as every farmer and many families in the towns and villages of the State raise pork for their own consumption.

(b) *In Swine*.—Hogs should not be fed on the offal or refuse from slaughtering houses or rendering works. Even if the waste products are thoroughly boiled before being given to the pigs it will not prevent rats from preying on the uncooked scraps and thus indirectly carrying the infection to the hog pen.

Rats, mice and other vermin should be excluded as far as possible from the piggeries. All scraps and swill fed to hogs should be boiled; better, the pigs should be grain fed.

Hog pens and yards should not be allowed where the hogs have access to the drainage from the grounds or pens of other hogs or from slaughter houses, rendering plants, sewers or privies.

(c) *In Rats*.—The nomadic habits of the rat make it an important factor in spreading the infection. Rats are also cannibals, preying on the sick and old of their own number. The well known avidity with which pigs catch and eat rats explains to some extent the source of the infection in pigs, and from this alone the rats around the country should be as thoroughly eradicated as possible.

TREATMENT.

The treatment of trichinosis varies with the stage of the disease. If the disease be recognized *early* the alimentary tract should be thoroughly cleared of the infective material, as nature often does by the vomiting and diarrhoea.

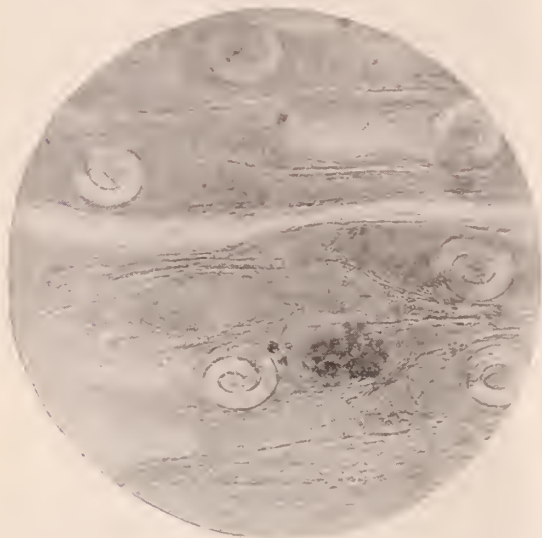
The thorough washing of the stomach with one to two ounces of glycerin in the water, combined with free purgation and washing the colon with glycerin and water is of great value in limiting the number of parasites which migrate to the muscles and possibly in some cases preventing altogether further symptoms. Among the purgatives calomel and salts, castor oil, rhubarb and senna are all of value. The case should then be protected from the possibility of further infection.

Even at later periods (up to six weeks) purgation and colon irrigation are of value by lessening the number of embryos in the

intestine, and so diminishing the number which migrate to the muscles.

Vermifuges are not of much value. Glycerin is probably the most efficient and can be given in dram doses every hour for ten to twelve doses or it can be given in one large (3 ounce) dose. It is harmless. It is supposed to act by abstracting the water from the parasite and so cause its death. Thymol, santonin, male fern and other anthelmintics have been used but are of little value.

There are no medicines so far as known which have any effect to prevent or delay the embryos in their migration from the intestine to the muscles or which affect them after their lodgment. After the muscular symptoms appear the treatment must be symptomatic, the indications being to relieve the pain, secure sleep and maintain the strength.



Unencysted trichinae in human biceps. First fatal case of Bristol series.

For the pain prolonged hot baths or inunctions with some stimulating liniment may be used. The coal tar products may be used guardedly. Some opiate is often necessary, codein being preferable, but less efficient than morphine.

Other hypnotics may be unnecessary if opiates are used, but sleep is absolutely necessary to conserve the patient's strength. The diet must be nutritious. Stimulation may be necessary. Good nursing is essential.

The case histories No. I-VI are kindly furnished by Dr. Geo. F. Edmunds of Bristol, Vt., in whose practice they occurred.

CASE I, L. S. Aged 9, female. Came to office for treatment December 17, 1905. Had been feeling sick for three or four days, with ill defined symptoms of gastro-intestinal trouble. Had vomited the night before and was still nauseated. There was some edema of face especially around eyes which had been present for two or three days. Tongue coated. Pulse 120, temperature 101 F. Was given rhubarb and soda, and calomel to be followed by salts in the morning. Found patient in bed next day, still nauseated, and bowels acting frequently. Gave salol and sent blood to the State Laboratory for Widal test. Laboratory report was negative. Vomiting ceased the 20th, although the nausea kept up for three or four days. During the second week of treatment hyperesthesia and muscular pain and rigidity came on; she suffered considerable from insomnia. This condition continued about two weeks longer when the tongue began to clear off and the facial edema to disappear. Patient had become quite anemic and continued to grow more so for two weeks when she began to improve and recovery was steady from that time.

The leucocyte count which was made February 20, 1906 after the diagnosis had been made in the other (II & III) cases was as follows:

Total number	14,000
Polynuclears	52%
Eosinophiles	21%
Small lymphocytes	20%
Large lymphocytes	7%

The pig from which the pork was obtained and of which these cases ate, was killed December 10, 1905, and was first eaten of on that same date. The symptoms of importance and interest in this case are, the early edema which must have been toxic, and the presence in the child of insomnia. The diagnosis of trichinosis was not made until the second case was in the fourth or fifth week.

CASE II. T. S. Male. Age 6 years. Had been under observation for a week preceding his acute sickness. During that time had noticed his eyelids were swollen and called his mother's attention to it. Examined the urine and found specific gravity normal and no albumen or sugar present. The boy played around and seemed quite well until December 26, 1905, when he was taken with pain in

stomach and frequent vomiting. Temperature was 104 and pulse 120. Left calomel and soda to be given every hour until bowels acted freely, which they did the next day and the vomiting ceased. Temperature was 102, pulse 120 and tongue coated; patient much prostrated and eyelids more swollen. This condition with a little improvement continued until the third week when the edema increased extending over the entire body, the bowels became tympanitic and a slight rigidity of the muscles appeared. Temperature ranged from 99 to 100; pulse 120 to 124; respiration 24-28; tongue heavily coated.

At this time, the 3rd week, the child had been given undercooked pork to which the relapse was attributed. This also led up to the fact that he had craved and been allowed to eat a great deal of pork for some days previous to his sickness. This fact suggested very forcibly that both cases were due to infectious meat. It was stated to the family and they were requested to eat no more of it until the cause of the disease was fully decided; they complied, with the exception of Mr. S. (Case V.) and one daughter, M. S. (Case VI, aged 13 years) who did occasionally eat some little pieces of raw smoked shoulder unknown to the family.

During the fourth week the muscles became more rigid; the respiration began to be irregular and the patient suffered from dyspnoea; there was retraction of the neck, more prostration and general hyperesthesia.

At this time, January 27, 1906, Dr. A. M. Norton saw the patient with me, and three days later Dr. Beecher was called. A lumbar puncture was done and the fluid was reported negative.

February 2 an examination of the urine by Dr. B. H. Stone was as follows:

Sp. gr. 1025—acid—trace of albumen, urea 53.4 gr. to oz. Microscopically, many hyaline, granular and epithelial casts, many uric acid crystals.

February 4, Dr. Beecher sent Dr. L. P. Sprague to secure some blood from this case and from the mother who was also sick. Some pork was also obtained and examined. The blood examination in this case was as follows:

Erythrocytes	1,000,000
Leucocytes	10,000
Hemoglobin	60

Differential count of leucocytes,

Polynuclear	50%
Small lymphocytes	38%
Large lymphocytes	10%
Eosinophiles	2%

The pork was negative.

During the fifth week there was very little change in the patient's condition other than the continual anemia and emaciation which had been very marked.

At the beginning of the sixth week bronchitis developed and later some pleurisy with small areas of pneumonia; there was a slight cough; temperature raised to 101 dropping to 99 two days later. The patient now grew weaker rapidly and continued to the close which came February 11, at the end of the seventh week of illness. The treatment was first directed toward clearing the alimentary tract with calomel, rhubarb and soda followed with Rochelle salts. After which the treatment was internal antiseptics until the third week after the child had been given a quantity of pork when another course of calomel and soda was administered.

During the fourth week when rigidity of the muscles was most marked ergot was given and continued for two days when it was stopped owing to disturbance of the stomach.

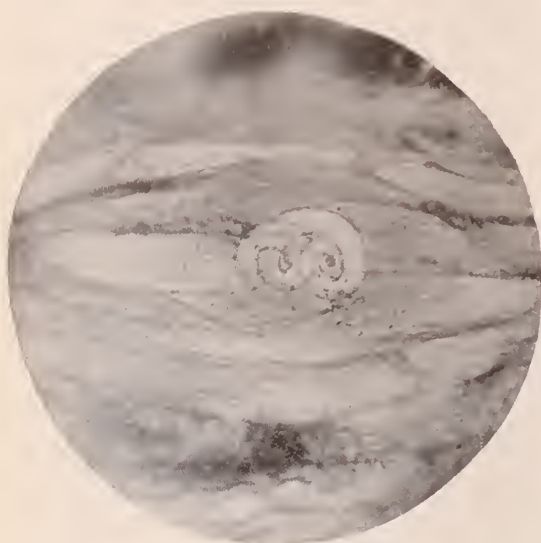
During the fifth week, when the diagnosis had been confirmed by the examinations of the blood in this and case III, large doses of glycerin were given to expel any remaining trichinae which might be present. Other treatment was symptomatic and supporting, a fair allowance of liquid and semi-liquid food was taken throughout the sickness, aided by iron preparations; and during the last two weeks by digestives and strychnine. This patient received the benefits of a good nurse only the last three weeks of his sickness.

AUTOPSY. February 12, 1906. By Dr. Beecher, assisted by Dr. J. J. Derven.

Little subcutaneous fat. Stomach position and size normal, contained some fluid. Small intestine mostly empty. Catarrhal enteritis. Mesenteric glands markedly enlarged. Appendix postcaecal and one-third adherent. Large intestine distended with gas, especially ascending and transverse positions. Liver large for child and lighter colored than normal. Gall-bladder full of bile. Spleen small for child, otherwise normal. Kidneys—Left,

large and lobulated with markings poorly defined, somewhat congested and capsule striped easily. Right, same size as left, pelvis full of urine, uric acid debris, &c., and markings poorly defined.

Pancreas normal. Bladder distended, reaching to within one inch of umbilicus, normal internally. Left pleura contained same amount of fluid and lung congested posteriorly. Thymus gland persistent. Pericardium contained one-half ounce of fluid. Heart, large, light colored clot in right auricle. Otherwise heart was normal.



Trichina in sausage. Source of Hardwick epidemic.

Microscopical examination of the muscles showed a heavy infection, with trichinae the biceps of the arm especially so. We estimated from counting the number in a section of known size that there were 5,140,000 parasites in a cubic inch of the biceps muscle. Had the muscular system of the whole body been as heavily infected the parasites would have numbered about two and one-half billions. The parasites practically took up 1-6 of the muscle. No trichinae were found in the heart muscle.

The diagnosis in this case was made from the clinical symptoms of gastro-intestinal irritation, followed by edema and the muscular symptoms, and was confirmed by the results of the blood examination of the mother, case III, and made absolute by the autopsy of this case. The blood examination done late in the sickness of this a fatal case was negative, as was to have been expected. The blood of

the mother, case III, examined at the same time gave a marked eosinophilia. The first examination of the pork was negative. Some specimens taken on the day of the autopsy however showed the pork moderately infected.

CASE III. MRS. S. January 10 Mrs. S. complained of being very tired with pain in back and extremities; there was also some slight puffiness of the eyelids. She was given mild chloride accompanied with sal codia and ordered to rest, this relieved her very much until ten days later when she was taken with gastro-intestinal pains and nausea. She was then given warm water and soda until she vomited freely, then calomel was given until the bowels purged, this relieved the nausea for a time, although it returned to be more or less present for two weeks. During the first two weeks the patient became edematous over the muscles affected, and the weeks following there was marked anemia and emaciation. Her highest temperature was 102; pulse ranged from 90 to 110. Bowels and kidneys acted freely. Patient restless at times but always relieved with codein.

The sixth week the edema began to disappear and appetite to improve. March 9th she sat up for the first time. The gain was steady but slow from then on.

The blood was examined February 4, being obtained by Dr. L. P. Sprague and examined by him and Dr. B. H. Stone. It was as follows:

Erythrocytes	.....	3,000,000
Leucocytes	.....	10,800
Hemoglobin	.....	70%
Differential of leucocytes,		
Polynuclear	.....	58%
Large lymphocytes	.....	10%
Small lymphocytes	.....	8%
Eosinophiles	.....	24%

This examination showing the marked eosinophilia, confirmed the diagnosis in this case and in case II.

Another examination of the leucocytes was made February 12 by Dr. B. H. Stone. It was as follows:

Leucocytes	.....	17,000
Polynuclears	.....	75%
Small lymphocytes	.....	1%
Large lymphocytes	.....	3%
Eosinophiles	.....	21%

This patient showed at first what was evidently a gradual and slight infection. The

gastro-intestinal symptoms which came on ten or more days after she first complained were probably due to an extra large dose of infected pork.

CASE IV. MRS. P. Mrs. P. a married daughter, came home visiting January 24th. She ate some cooked pork that night. The night of the 27th she had a chill, abdominal pain and nausea. Temperature 102; pulse 120. She was given warm water and soda twice until she vomited, taking three pints each time. This relieved her very much. Six grains of calomel were left to be given in the next six hours this to be followed with Rochelle salts. The next forenoon the bowels acted freely, the temperature was 99 and the patient felt very comfortable. She continued to feel better and returned to her home in Connecticut four days later. Some two weeks later she was taken with muscular pains and then followed a mild run of the disease from which she made a slow recovery some weeks later. The first diagnosis made in Connecticut was that of muscular rheumatism. The mild course of this case was undoubtedly due to the early and thorough emptying of the alimentary canal of infectious material.

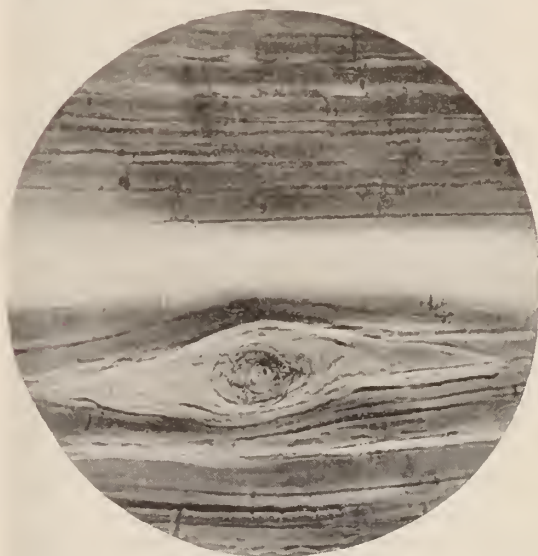
CASE No. V. Mr. S. aged 49, and of strong physique, February 1, showed slight puffiness around eyelids. His attention was called to it and advised to take treatment. He made light of his condition saying that with hearty meals and plenty of alcohol he would be all right. He did eat heartily and drank some alcohol every day until February 12, when he was taken with nausea and abdominal pains. He was given an emetic and thorough course of physic which brought some temporary relief. He now began to have muscular pains and rigidity. Edema increased each day, extending over the entire body. In a week the patient became very much prostrated, the tongue coated and badly swollen; temperature 101, pulse 80-90 per minute. From now on the disease ran a course very similar to case No. 2, the patient emaciating and growing rapidly anemic, dying during the eighth week.

A differential count of leucocytes in this case, February 20, was as follows:

Polynuclears	76%
Small lymphocytes	3%
Large lymphocytes	3%
Eosinophiles	18%

This patient was very loath to believe the pork infected, and unfortunately for him ate of it after he had been told not to. The gradual onset of symptoms in this case was probably due to oft repeated small doses of the infected meat, and the gastro-intestinal symptoms of February 12 to an exceptionally large number of ingested trichinae.

CASE No. VI. M. S. Aged 13. Taken ill February 9th. This girl had been living away with an aunt until January 25, when she came home to help care for the others. She was warned not to eat any pork as it was condemned. She fully understood and agreed to this; but there was part of a smoked shoulder in a cold pantry and at different times she ate little pieces of this raw meat, as she admitted soon after being taken sick.



Encysted trichina in pork. Source of Bristol outbreak.

This case was very similar to No. 2; there being early oedema, gastro-intestinal disturbance and then muscular symptoms, pain rigidity and hyperesthesia were present; these symptoms were attended and followed by marked anemia and emaciation.

A differential count of the leucocytes February 12, was as follows:

Polynuclears	82%
Small lymphocytes	1%
Large lymphocytes	1%
Eosinophiles	16%

Another count was made February 20 as follows:

Polynuclears	64%
Small lymphocytes	8%
Large lymphocytes	2%
Eosinophiles	26%

During the fifth and sixth weeks she was almost entirely helpless. Respiration was labored and it seemed at times as though she would die from involvement of the respiratory muscles. The seventh week there began to be some improvement and from that time the gain was steady but slow.

During the tenth week she began sitting up a few minutes at a time. At the end of the eleventh week she was sitting up three or four hours each day. At this time the family moved away and no more was seen of the case; but it was learned from a brother that when she began walking it was on her toes and balls of the feet owing to muscular contractions of the tendon Achilles, muscles of the back of the leg. She is now able to walk normally although she has not regained full activity.

Cases I, III, IV, and VI have convalesced slowly. At present they are much improved but some muscular weakness still persists.

There had never been any sickness of the pigs that Mr. S. had noted. The absence of symptoms in the pig is the usual rule; when symptoms are present they resemble markedly the symptoms in man. A symptom often present is an apparent paralysis of the hind limbs. Other pigs from the same litter raised by a neighbor showed no trichinae on examination. The pigs were grain and swill fed. The yard and pen were ordinarily clean. There were and are many rats about the place. An examination of one rat caught on the place about October 1, 1906, showed on careful search no trichinae present. The infected meat was finally sent to the Burlington Rendering Company.

Two other patients have come to my notice who undoubtedly had the disease, but unfortunately in neither was muscle obtained and in only one was a blood count done. The patients were both from the group of cases which were taken sick at Hardwick following a Christmas feast. For the notes of case VII I am indebted to the Mary Fletcher Hospital records where the case finally went for treatment.

CASE VII. A. C. Male, aged 20. Swiss. Admitted to hospital January 24, 1906. Family history negative. Personal history nega-

tive up to beginning of present trouble about three weeks before admission.

The sickness was supposed to have started from eating tainted meat at a feast on Christmas night but no symptoms of the attack were obtained, mainly from lack of an interpreter. Trichinosis was not suspected. He complained of cramps in legs, pain in back, headache and diarrhoea. The tongue was coated, there was no suspicious eruption, no enlarged spleen and the Widal reaction was absent. Appetite was poor. Slept fairly well. Temperature was irregular reaching 100 1-5 F. as a maximum only three times and on one occasion going to 97 F.

The urine was slightly above normal in amount but otherwise negative. The patient was discharged improved February 12, 1906. The sausage remaining from the Christmas feast at Hardwick was examined at the State Laboratory by Dr. B. H. Stone, February 13, 1906, the day following the autopsy of case II of the Bristol series. It was found to contain many trichinae.

CASE VIII. A. B. Male, Aged 40, Italian. Seen at office May 14, 1906. Previous and family history negative. Attended the feast Christmas at Hardwick at which the infected sausage was eaten. Taken sick December 29, 1905, with sharp intermittent pain in abdomen. He vomited at the same time and later had diarrhoea. In about a week he began to have soreness and weakness of muscles of arms and legs, with swelling over them. He had some swelling of face. He was in bed thirteen days. Had worked twelve days since then but was still weak and had some pain and soreness in muscles. He had some digestive disturbance mainly stomachic. The blood examination was normal. Unfortunately no muscle could be obtained owing to the patient's objections.

That the disease in Vermont is not confined to the country is shown by the following report of a case in Burlington.

Last Spring while examining histological specimens which he had given his class at the College, Dr. L. B. Morrison found a trichina in a section of the eye ball. He has kindly furnished me with the following report:

The parasite was encysted in one of the muscles of the eye ball just at its attachment to the sclera.

Further investigation showed that the dog

from which the specimen was obtained was rather heavily infected with parasites which were encysted, but the cyst walls were not calcified.

He examined in all about 800 specimens from the animal, including all the organs and many of the muscles. The parasites were found only in the skeletal muscles, the muscles of the eye, tongue and diaphragm. None were present in the heart muscle.

The dog, a spaniel, was one which was born and raised in the city and had, so far as we were able to ascertain, never been outside the city limits.

In concluding I *wish* to emphasize the ease of accurate diagnosis by the blood and muscle examinations, the value of the early and continued eliminative treatment, and the extreme importance of prophylactic measures, especially the thorough cooking of all pork products.

Since the above paper was read two additional cases have been seen, one in the practice of Dr. C. F. Dalton of Burlington, and one in my own practice.

Both cases showed eosinophilia and the muscle examination in both showed trichinae. In my case the parasites were motile when examined.

The infection was from well-cooked (?) native pork in both instances. Both cases recovered. The muscular symptoms persisted for a long time (6 mo.) in one case.

I desire to acknowledge my indebtedness to the many friends whose help in various ways made this paper possible.

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DISCUSSION.

Dr. G. F. EDMUNDS, Bristol.—The hour is late and we have listened to a very exhaustive and excellent paper and the little I would say would not be materially new, so I will relate briefly my experience with trichinae. I met with a great deal of difficulty in making a diagnosis at first, consequently other members of the family continued to eat the diseased meat about two weeks longer, when through the aid of the laboratory the diagnosis was established. It is worthy of mention that out of all who ate any considerable amount of diseased meat, only one escaped the disease, that being an elderly man who lived there. He ate lightly of it about three weeks; but

none except what was thoroughly cooked, which no doubt accounts for his escape from infection. Another instance worthy of mention is that of a neighbor of this family, a man about sixty years of age, who did his own cooking. One of the children took him a piece of the tenderloin the day it was dressed. Soon after he became quite ill but did not call a physician for a number of days, then I saw him and he said he was having one of his bilious attacks, but had been feeling weak for two or three months. He had oedema of the face and extremities and spells of being nauseated; was anemic and looked like a man suffering from malignant disease. He emaciated rapidly and died after seven weeks' illness. The cause of death in certificate was given toxic anemia, which was correct, although he did die of trichinosis. We have since learned that the hog which was reported to be all right was not, but rather diseased. There being paralysis of the hind legs causing him to drag those parts on the ground.

DR. S. E. DARLING, Hardwick.—I will just relate the history of a few cases which occurred in Hardwick the early part of this year. Last Christmas one Italian invited about thirty of his friends to his house and he served them with sausages. From three days to a week after they partook of this sausage, sixteen of the party were taken sick. The first symptoms were severe irritation of the alimentary tract with diarrhea; following this with severe pain in the muscles. These patients grew rapidly weak, losing flesh and becoming very pale and anaemic. Jan. 20th the wife of the gentleman entertaining died from exhaustion and weak heart. There were several cases who were unable to resume work for several months. There was one case who was sick for eight months who is now improving. This patient had serious trouble with her lungs. The meat from which this sausage was made came from a young hog raised in Wolcott and showed no signs of trichinae. I believe in the majority of meat, especially from young hogs, that trichinae is invisible. The treatment which was pursued was supporting and cleansing the alimentary canal.

CLOSED BY DR. BEECHER.—Pork which is known as "measly" pork is not trichinous pork. "Measly" pork is pork infected with the pork tapeworm. Trichinous pork is almost always normal to the naked eye. Even when the trichinae are encysted or calcified the pork may look normal macroscopically. Vermont was supposed to be an uninfected area but from these cases, which exceed in number any of the epidemics reported in America with one exception, it can hardly claim that distinction longer.

The *Journal of the Michigan State Medical Society* states: "There are about 250,000 doctors in the world. Half of them are in the United States. In England there are seventy-eight and in France fifty-one to the 100,000 but in this country there are about 175, or one to every 620 people. In London there are 128, in Paris 111, in New York City seventy-four, and in Constantinople thirty-five per 100,000 inhabitants."

Vermont Medical Monthly.

A Journal of Review, Reform and Progress in the Medical Sciences.

H. C. TINKHAM, M. D., }
B. H. STONE, M. D., } *Editors.*
C. F. DALTON, M. D. *Managing Editor.*

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BURLINGTON, VT., JULY 15, 1907.

EDITORIAL.

A laymen offered the opinion recently that in twenty-five years pork would be practically eliminated as an article of diet. As one talks with intelligent persons of different classes, it is surprising to note how general is the knowledge of trichina and tape-worm. It is often not an exact knowledge, but in nearly all cases the source of these parasites was correctly understood. Together with this knowledge often goes an aversion to pork as food, or at least an understanding that it must be thoroughly cooked. With these facts in mind, the layman's opinion appears tenable. In any event it is quite probable that the feeding of swill and offal to hogs will gradually give place to grain feeding to the betterment of digestion and the general raising of the food standard of civilized people. We have already come to see the wisdom of some of the old Hebrew customs, and abstinence from unclean food would not be an unwise addition to the list.

It seems too bad that we cannot continue to celebrate our independence in the old-fashioned way with the fire and powder, but a survey of the annual Fourth of July list of accidents shows that some regulation is absolutely necessary. This year has apparently been no exception to the rule, although the full records of injuries and deaths have not yet been collected and finally the tetanus cases are to be reported. The *A. M. A. Journal* last year reported 89 cases of tetanus, compared with 104 in 1905, 105 in 1904 and 415 in 1903. The decrease in the number of cases is accounted for, not by smaller number of accidents, but by the more intelligent treatment by physicians, as most of the developed cases were in persons who had no medical attendance. The numerous accidents this year give ample opportunity for a large number of tetanus patients, which will afford a good basis for further observation along these lines. Most cities and towns have formulated regulations as to the use of explosives, which are more or less strictly enforced and yet wherever fireworks are given any prominence in the celebration, the slaughter of innocents is a matter of record. It appears that the elimination of tetanus is to be a matter of education, and it is obvious that this education must begin with the doctors who should be thoroughly posted on the attributes and characteristics of the tetanus bacillus and the best methods of opening and aerating suspicious wounds.

We are publishing this month a report of the Council on Medical Education of the American Medical Association, on the condition of medical education in the United States, and the facilities for teaching of the various medical schools. There can be no question in regard to the need of this organ-

ized work to improve the standard of medical education, and much good must result from it. While it is true that the majority of the medical schools are giving satisfactory courses of instruction and maintaining satisfactory standards of education, it is evident from this report that there are a number of medical schools that are not doing either, and for obvious reasons it would be better that these schools either improve their course of instruction, or discontinue it altogether. The day is past when graduates from medical colleges having a low standard of requirement for graduation are a menace to public safety, for each state has protected its people from professional knaves and weaklings by establishing state examinations for license to practice which all must pass before they can obtain a license. However, it is wrong to allow these schools to practically bunco their students by taking the fees and not giving them instruction which will enable them to pass state boards, and consequently not qualifying them to practice medicine. The ten points of inquiry made by the council, in regard to each medical school, are all important in determining the relative efficiency for teaching, but it does not seem to us that they are all equally important. It is evident that by this plan a school that is actually doing good work and maintaining a satisfactory standard of education but has no endowment, cannot secure a satisfactory rating, and that the same school with the same standard of education with endowment could secure a satisfactory rating. Discrimination which depends upon monetary conditions largely to the disregard of educational standards, is unfair.

APPLICATION FOR WARTS.

R Chloral hydrate, 1 gram; Acetic acid, 1 gram; Salicylic acid, 4 grams; Ether, 4 grams; Collodion, 15 grams. Mix, apply once a day with a camel's hair pencil.

NEWS AND PERSONAL ITEMS.

We desire to make this column of personal interest to all. Physicians are requested to send news items.

VERMONT.

Dr. E. B. Riley, '07, U. V. M. College of Medicine, will take a vacation trip abroad for three months.

Dr. and Mrs. C. S. Caverly and son of Rutland have gone to Europe to remain until September 1.

Dr. S. T. Hubbard, '07, U. V. M. College of Medicine, has an appointment in the hospital in Butte, Mont.

H. W. Mitchell, '96, U. V. M., formerly assistant in the Danvers (Mass.) Insane Hospital, has been appointed superintendent of the Eastern Maine Hospital for the Insane at Bangor.

Dr. H. R. Watkins has sold his residence in Burlington to Dr. C. H. Beecher. Dr. Watkins will take up special study and return to Burlington for practice some time in the future.

About 50 attended the annual meeting of the alumni of the University of Vermont College of Medicine, held in connection with the commencement exercises. Remarks were made by ex-Governor Woodbury and Drs. C. P. Thayer, C. M. Ferrin, J. B. Wheeler and A. F. A. King. The following officers were elected for the ensuing year: President, C. M. Ferrin; vice-presidents, U. A. Woodbury, G. C. Morey, C. S. Caverly, Fred Hutchinson and M. F. McGuire; secretary and treasurer, Lyman Allen; executive committee, H. C. Tinkham, J. N. Jenne, C. F. Dalton, F. T. Kidder and E. H. Martin. Supper was then served in the medical college, and informal remarks were made by several of the alumni.

NEW HAMPSHIRE.

Dr. Edwin H. Place and Miss Emma Frances Bixby were married at Francestown June 28. Dr. Place is a graduate of Harvard Medical School and is now connected with the Boston City Hospital.

Drs. Geo. M. Davis of Manchester, and James T. Greeley of Nashua, medical referees for Hillsborough county, have named as their respective deputies Drs. Henry W. Boutwell

of Manchester, and Herbert S. Hutchinson of Milford.

MAINE.

The 55th annual meeting of the Maine Medical Association was held at Lewiston, June 11 and 12. Among the papers presented were Inguinal Hernia, by Dr. J. A. Donovan of Lewiston; Ventral Hernia, by Dr. E. F. Pierce of Lewiston; discussed by Dr. S. H. Weeks of Portland; Infantile Paralysis, with special reference to treatment by static electricity, Dr. S. J. Bassford of Portland; Diagnosis, Prognosis and Control of Pulmonary Tuberculosis, by Dr. Estes Nichols of Hebron; Accidents and Injuries, and some of the Medico-Legal Questions attending them, by Dr. M. B. Sullivan of Dover, N. H.; Treatment of Pneumonia in Country Practice, by Dr. A. J. Bradbury of Oldtown; Eminent Chemists, by Prof. L. G. Jordan. Dr. C. E. Williams of Auburn presided.

BOOK REVIEWS.

THE AMERICAN POCKET MEDICAL DICTIONARY.—Edited by W. A. Newman Dorland, M. D., editor "The American Illustrated Medical Dictionary. *Fifth Revised Edition.* 32mo of 574 pages. Philadelphia and London: W. B. Saunders Company, 1906. Flexible Morocco, gold edges, \$1.00 net; thumb indexed, \$1.25 net.

There will always be a real need for a pocket dictionary. For a student such a book is indispensable. The author has made a careful selection of the most used words and one is surprised at the comprehensiveness of so small a volume.

A PRACTICIAN'S HAND-BOOK OF MATERIA MEDICA AND THERAPEUTICS, based upon established physiologic actions and the indications in small doses. By Thomas S. Blair, M. D. Over 250 pages, bound in limp library cloth. Price, \$2.00 net. Published by The Medical Council, 4105 Walnut Street, Philadelphia, Pa.

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Author of "A Text-Book of Practical Therapeutics" and "A Text-Book of Practical Diagnosis." Second Edition. Revised and Enlarged. Cloth, \$5.00; Leather, \$6; half Morocco, \$6.50. Lea Brothers & Co., Philadelphia and New York.

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1. What is Antipyrine?
Discuss the physiological action and give adult and child dose of same.
2. Name 4 preparations of the following drugs and give their dose:

Aloes	Iodine	Rhubarb
Arsenic	Phenol	Lead
Aconite	Phosphorus	Opium.
3. Discuss the action of Tuberculin.
4. Name the alkaloids of the following drugs, and give their dose: Veratrum Viride, Hydrastis, Digitalis.
5. What are alteratives? Name 4 and give dose of same.

THERAPY.

1. In what diseased conditions would you prescribe Cocaine, Chloral, Quinine, Belladonna?
2. Write a formula for the following diseases:

Chlorosis,	Gout,	Gastritis,
Hiccough,	Pertussis,	Endocarditis
3. How would you manage a case of:
 (a). Infantile Convulsions;
 (b). Angina Pectoris?

4. Name four (4) diseased conditions in which counter-irritation might do good? What would you use for same?
5. Give your treatment of the following:
 Cholera Infantum; Tuberculous Meningitis; Neuralgia; Edema of Glottis.

CHEMISTRY.

1. What is Allotropy?
In what elements is it exhibited?
2. Describe 3 elements belonging to the Nitrogen group.
3. Describe the properties of Ozone. At what time of year is it most abundant in the air?
4. Give an explanation of the processes of fermentation and putrefaction.
5. State important differences in composition of human and cows' milk.
Describe in detail tests for albumen in urine.

PATHOLOGY.

1. What may be the results of hemorrhage?
2. In what seats may calcification take place in disease?
3. Give the distribution of the typhoid bacillus.
4. Give the pathological anatomy in contracted kidney.
5. What is the pathology of cutinism?

PRACTICE.

1. Discuss the use of the Brand bath in typhoid fever.
2. Give (a) the etiology of malarial fever; (b) of yellow fever.
3. Give the symptomatology of variola.
4. Give prognosis and treatment of child congenitally syphilitic.
5. Differentiate between septic intoxication and septic infection.
6. Discuss the possibility of involvement of organs remote from urethra in gonorrhoea in the male.
7. Give the differences as revealed by microscopic blood examination between anaemia and chlorosis.
8. Write a short article on tachy-cardia.
9. What are the symptoms and prognosis in Bell's palsy?
10. What differences would you expect to find between urine from a patient with chronic parenchymatous nephritis and urine from one with chronic interstitial nephritis?

ANATOMY.

1. Describe the femur.
2. Describe the radio-carpal articulation.
3. Name the extensor muscles of the thigh, and describe any one of them.
4. Give the origin, course and distribution of the renal arteries.
5. Give the origin, course and termination of the saphenous veins.
6. Describe the fourth ventricle.
7. Give the origin, course and distribution of the great sciatic nerve.
8. Give the gross anatomy of the lungs.
9. Describe the inguinal canal, and name the coverings from without inward, of an oblique inguinal hernia.
10. Describe the mammary glands.

BACTERIOLOGY.

1. Name and describe the two most common pyogenic organisms.
2. What is a pure culture? State how a pure culture is made.
3. Describe toxins, antitoxins and ptomaines.
4. Discuss pathological conditions produced by the colon bacillus.
5. Give a reliable method of cultivating and staining the bacillus of diphtheria.

PHYSIOLOGY AND HYGIENE.

1. Describe protoplasm.
2. What are the functions of epithelium?
3. Give the varieties of muscle tissues, and give example of each.
4. What conditions retard the coagulation of the blood?
5. Describe normal heart sounds. How and where should the stethoscope or ear be placed to hear these sounds to best advantage.
6. Give the characteristics of the secretions of the parotid, submaxillary and sublingual glands.
7. How many types of glands in the small intestines? Name them.
8. What nerves are distributed to the lung tissue.
9. Discuss the function of the tenth nerve.
10. Give the physiology of menstruation, and describe the menopause.

-
1. How should a patient who has been rendered unconscious by heat be treated?
 2. Mention some of the remote consequences of epidemic influenza on public health.
 3. What are the diseases the predisposition to which is greatly increased by the continual use of alcoholics.
 4. What physical training would you recommend for persons with weak respiration.
 5. Describe the effects of a hot and moist atmosphere on the human system, and state the class of diseases this atmosphere is likely to induce.

OBSTETRICS.

1. (a) Describe briefly the bony pelvis, giving the important diameters.
(b) Give method of computing time of labor.
2. Give etiology and treatment of albuminuria of pregnancy.
3. Give diagnosis of breech presentation and management of same.
4. Describe management of a normal R. O. A. presentation.
5. Give causes and treatment of retained placenta.
6. Give indications for podalic version and describe operation.
7. Give prophylactic and curative treatment of ophthalmia neonatorum.
8. Define puerperal sepsis and give prophylaxis.
9. Give directions for the preparation of a patient at the onset of labor.
10. Name four conditions calling for the application of forceps and describe mode of application.

GYNAECOLOGY.

1. Define subinvolution and give causes.
2. State what you expect to determine by a digital examination.

3. (a) Enumerate the most common symptoms arising from a lacerated cervix.
(b) Describe operation for lacerated cervix.
4. Give diagnosis and treatment of uterine fibroids.
5. Give etiology and treatment of
(a) Dysmenorrhoea.
(b) Menorrhagia.

SURGERY.

1. What is Leucocytosis? Its value in surgery.
2. Differentiate between an abscess and a tumor over an artery.
3. Make a diagnosis of hip joint disease.
4. Describe the changes that take place during inflammation.
5. Give the etiology, pathology, symptoms and treatment of erysipelas.
6. How would you reduce a dislocation of the hip?
7. Give the etiology, pathology, symptoms and treatment of synovitis.
8. What are the dangers liable to follow gonorrhoea?
9. Give symptoms of fracture and name varieties.
10. Describe in detail the operative treatment of a case of empyema.

LEGAL MEDICINE.

1. What is meant by cadaveric rigidity and cadaveric lividity?
2. On what grounds would you form your opinion that a child was legitimate or illegitimate?
3. What bearing has medicine on life insurance?
4. Give examples of medico-legal cases.
5. What facts would you give in being called to a case of gun-shot wound?

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

ACUTE PANCREATITIS.

From a review of 105 cases of acute pancreatitis, the writer concludes that gall-stones are probably the most common single cause of pancreatitis, 42 per cent. of the present series being due to this cause. Gastro-intestinal disorders are the next most common cause of acute pancreatitis. In the present series of cases about 30 per cent. belong to this group. Seventeen out of 32 of this group have a history of alcoholism. It is very probable that retrojection of bile may be caused by intestinal disorders closing the papilla of Vater. Acute pancreatitis may also be caused by many other conditions, among these being typhoid fever, tuberculosis, mumps, trauma, syphilis, emboli, appendicitis, malaria, and gastric ulcer. The organism most commonly present is *B. coli communis*; next comes the streptococcus and the staphylococci. Typhoid fever is the most common of the acute febrile diseases present according to the previous histories of these cases of acute pancreatitis. In the present series 3 were directly associated with typhoid fever alone, and 4 had suffered from typhoid fever sometime before the onset of acute pancreatitis, and had apparently recovered; another had had typhoid fever and erysipelas. But 2 out of these 8 cases were associated with gall-stones. It should be kept in mind that in this latitude typhoid is the most common continued febrile disease. Anfin Egghal (*John S. Hopkins Hospital Bulletin, April, 1907*).

ARTERIOSCLEROSIS AND ITS TREATMENT.

ARTERIOSCLEROSIS SENATOR (*Die Therapie der Gegengart, March '07*), is an inflammatory, degenerative, necrobiotic process, beginning according to the vessels involved in the intima or media and extending to the other coats of the arteries. The deposit of lime salts is a result not the cause of the disease, and the recent suggestion that they be withdrawn from the food would more likely prove hurtful than helpful. The increased blood pressure is not the cause of the arterial changes; arteriosclerosis (senile form) is a wearing out of the arteries ("Abnutzungs Krankheit"), but may be caused by syphilis, alcohol, tobacco, mercury, lead and, perhaps, carbon, sulphide, prolonged excessive use of coffee or tea, meat extractives, gout, diabetes mellitus and nephritis, and excessive proteid consumption may predispose to the disease; the excessive nitrogenous diet leading to increased intestinal fermentation, chronic intoxication (so-called auto-intoxication), and arterial disease. As additional predisposing causes may be mentioned sedentary life, constipation, and the consequent sluggish circulation. In treatment, the first step should be the withdrawal or limitation of alcohol and tobacco, but in senile arteriosclerosis these and other changes should be made tentatively. The diet must be regulated, proteids and meat extractives limited, no meat, or only white meat, and fresh fish, milk, fruit, fats, bread, green vegetables, eggs in limited quantity, but in fat patients the carbohydrates should be withdrawn and green vegetables substituted and some lean meat allowed, constipation should be corrected and exercise active and passive prescribed, but with due regard for the heart. If the arteriosclerotic is also a diabetic, attention should first be given to limiting the sugar output, allowing abundant vegetable diet, acid fruits, salads and much fat. The milk and vegetable diet diminishes the viscosity of the blood, thus facilitating its flow and diminishing the work of the heart and arteries, the same may be said of the iodine preparations, and in addition that perhaps they act directly on the intima. Iodipin may be given in capsule, 1.00 three or four times a day, sajodin 0.5 five times daily, or potass. iodide (or sodium) 1.00-2.00, aquae ad 200.00, one teaspoonful three times daily, taken in milk; tinct. iodine, 1.00; spts. aether nitros., 30.00; three to four times daily 20 to 30 drops. Nitroglycerin, 0.1; spts. aetheris nitrosi, 30.00; three to four times daily, 15 to 20 drops. Hydrotherapy, but if the arterial changes are extensive, and especially if the heart is involved, with great caution; active and passive exercise should be carefully graduated. Recently the so-called blood salts have been recommended, anti-sclerosin tablets (composed of sodium chloride, sulphate, phosphate, carbonate, magnesium phosphate, and calcium glycerophosphate) at first two a day, gradually increased to six. Symptomatic treatment. —*Colorado Medicine.*

NERVOUS RHINITIS (RHINITIS VASOMOTORIA NERVOSA.)

KUTTNER (*Nasal Reflexes and Neuroses, Vienna, 1906*). This disease consists in a reflex neurosis, the sensory stimulation originating in some organ other than the nose, to which it is transmitted by way of reflex. It is usually made to include a number of pathological conditions related through their more or less close resemblance to true rhinitis. The disease rarely presents the typical familiar picture of genuine coryza; only some of its symptoms being present as a rule, such as swelling of the mucosa,

increased secretion, attacks of sneezing, etc., either separate or in combination. Other cases are characterized by an excessive severity of certain phenomena of the symptom complex, or by a combination with processes not generally associated with ordinary coryza. Whereas, however, certain clinical resemblances exist with the picture of acute rhinitis, there is a marked contrast as to the etiological factors in these two forms of rhinitis. Genuine coryza is an infectious disease, but nervous coryza is a reflex neurosis, which has nothing in common with infectious agents. A great variety of causes may enter into consideration for the determination of this reflex process; of a mechanical, chemical, thermic, psychic, or sensory character. The point of irritation may be located in the digestive or genito-urinary tract, at the surface of the body or elsewhere, but the immediate cause of nervous rhinitis is never referable to infection.

The foundation of the disease consists in a neuropathic change, which is usually designated as an idiosyncrasy or predisposition, as it is frequently manifested only by increased reaction to certain specific irritants. The pathological picture manifests itself in its various forms through this predisposition in conjunction with the preparatory and the determining factors. The number of accidental causes, which here enter into consideration, is very great. Sudden cooling of the body surface is the most common cause, being especially dangerous when due to draughts, striking only circumscribed portions of the skin. In different patients, either the back, the chest, or the feet may be particularly sensitive. (A thorough wetting is more apt to lead to genuine than to nervous coryza.) Severe attacks are sometimes determined by the contrast between the warm air of the bed and the cooler air of the room, when the patient first sits up in the morning. In many cases, the hot dry air of concert halls and theatres, restaurants, and social gatherings, etc., has a very unfavorable effect. A number of patients are very susceptible to tobacco smoke and various forms of dust. One of Kuttner's patients, who was used to all kinds of weather, had a copious discharge from the nose, whenever he inclined his head slightly forward. The existence of a nervous rhinitis rather than the evacuation of a cyst, the discharge of cerebrospinal fluid, or similar conditions, was positively shown by the fact that the characteristic nasal discharge was likewise provoked by any form of psychic excitement, tobacco smoke and a number of other injurious agents. In a similar manner, certain individuals are affected by psychic excitement, by sexual stimulants, diseases in the area of the digestive tract, and other injurious agents.

RELIEF AND CURE OF MIGRAINE BY THE CORRECTION OF ERRORS OF REFRACTION.

A great mass of work has been published by Gould and others regarding the relation of headaches to errors of refraction, and Baker, of Cleveland, who has closely studied migraine from an ocular standpoint, brings forward convincing proof that in many cases sick headache is due to eye-strain and can be cured if the proper glasses are worn. In 1895 he read a paper on the subject before the Cleveland Medical Society and stated at that time: "I could recite scores of cases of sick headache that have been cured by spectacles. Put on the proper glasses and the headache disappears; take them off and it returns." Since then there has been a great controversy among the leading oculists of America on the subject, some maintaining that migraine is always, and others that

it is never, the result of eye-strain. Baker has collected one hundred cases of undoubted migraine which he has fitted with glasses, and publishes the result of each after a lapse of two years' fair trial. He sent circular letters to the one hundred selected from his case-books in which he had entered a diagnosis of migraine. In all there had been a history of many attacks of scintillating scotomata, flashes of light or hemianopsia, followed by headache, nausea and vomiting, the attacks lasting from four to five hours in some, while in others two or three days. Of these one hundred cases, fifty-five were cured by the wearing of glasses; thirty-one were greatly benefited and seldom had attacks, which, when they did occur, were generally traced to some indiscretion, excessive use of the eyes, worry, etc.; fourteen were not benefited, five cured by tenotomy of one of the ocular muscles, one by the wearing of a pessary, and eight were not relieved, but found their glasses necessary for other reasons. The refractive errors were of all kinds, but the majority had astigmatism. Baker states: "It seems to me that a careful analysis of the refraction of these cases will almost force the conclusion that the predominating factor in the etiology of migraine is astigmatism." Heredity plays a prominent role in the etiology. He found seventeen cases in one family (two of which were among the one hundred selected), and he concludes that an individual with a family predisposition, an astigmatic eye and an occupation requiring close use of the eyes, will frequently suffer from sick headache.—*Lancet-Clinic*.

ACUTE INTESTINAL DISEASES OF SUMMER.

KERLEY (*British Medical Journal*, Oct. 13, 1906), says potent etiological factors are unfavorable climate conditions and unfavorable environment, neither of which can be changed to any great extent. Other factors are: First, a disordered gastrointestinal tract; second, infected food; third, faulty feeding methods; fourth, an absence of appreciation on the part of the parents and physicians that an attack of diarrhea or vomiting, or even a green, undigested stool occurring in an infant under eighteen months of age during the hot summer, is to be looked upon as a serious matter requiring prompt relief. With milk, the most readily infected of all nutritional substances, as the chief article of diet, it may be safely assumed that few infants pass through the heated term without having been subjected repeatedly to infection and bacteria sufficient to produce grave illness. The so-called market milks supply the nutrition for an immense majority of the infants of the poorer classes; this milk is not a safe food, and it is among these infants that the large death rate occurs. Mothers must be taught how to care for their children all the year around. They should be taught the value of fresh air, the use of boiled water as a drink, and the benefit of frequent spongings on hot days, how to care for the bottle and the milk, also how to prepare special articles of diet when these are needed. Municipalities must be educated to know their part as factors in the summer mortality. The farmers must be educated how to produce safe milk, and the consumers must be educated to appreciate its value and pay for it. The physicians must be educated so as to be able to teach the mother how to take suitable care of the child during the entire year.—(*Archives of Pediatrics*.)

DUST AND TUBERCULOSIS.

The commonly employed methods of house cleaning are sharply criticized by G. Homan, St. Louis (*Journal A. M. A.*, March 23), who would banish from domestic use the broom and duster or any other contrivance by which dust is set afloat in the atmosphere. He would have the vacuum or pneumatic method of house cleaning made compulsory by law. In every hotel, club, theater, church, office building or business establishment, and the apparatus for such should be as essential a part of the equipment as that for ventilation, fire protection, etc. He would also urge the use of this method in private homes, especially where carpets, heavy curtains and upholstery are in use. If the old methods involving the dissemination of household dust prevail, effort to eradicate human tuberculosis must of necessity be a failure. He gives as examples of the evil, personally observed instances of club houses, in which the operations of daily house cleaning are carried on alongside of tables where meals are being served and otherwise during the times when they are occupied by their patrons, even when the professed object of the club is the promotion of health and bodily development.

MEDICAL CARE OF INEBRIATES.

T. D. CROTHERS, Hartford, Conn. (*Journal A. M. A.*, Feb. 16), maintains that the cure of the inebriate depends on some as yet unknown constitutional change, and the treatment, therefore should aim to remove the exciting causes and to restore the nutrition and integrity of the organism, and thus to favor the bringing about of this change. A great many reported cures by drugs or mental or moral influences are simply the result of this constitutional change and in no way due to the agencies credited. If the case is an office one strict instructions should be given regarding the use of medicines and conduct and surroundings. If a periodic case, the premonitory symptoms must be watched for and apomorphin given, with special care as to time and place. If nutrition is greatly disturbed, phosphate of sodium combined with daily baths, is particularly useful. Conditions of systemic poisoning, lowered resistance, defective circulation, etc., are always present, hence purely moral treatment can have little effect. Each case is a study by itself, but we should aim to combine proper psychic treatment with measures to secure brain rest, to favor elimination of poisons, and to restore the lost balance of the organism. Crothers speaks highly of the value of the radiant light bath as an eliminative measure and as a restorer of the peripheral circulation. In many cases, he states, atropin with strychnin or lupulin is of service in relieving excitement, while the bitter tonics, especially large doses of infusion of quassia, are often of great value in overcoming derangement of nerve centers and in preventing paroxysmal explosions. The patient must be kept under medical oversight for a very long period, as the drink impulse may recur. There is little danger of the physician giving a too extravagantly hopeless prognosis of the danger in persons who are practically inebriates, nor is a pessimistic view of their incurability warranted. Clinical experience and rational study of inebriety indicate its curability and the permanency of the cure is proportioned to the accuracy of the study and the application of exact means. The great trouble at present is that the rational therapeutics of the condition is still in its infancy; moral treatment and quack treatment predominate everything, and the rationalist who would study and apply exact

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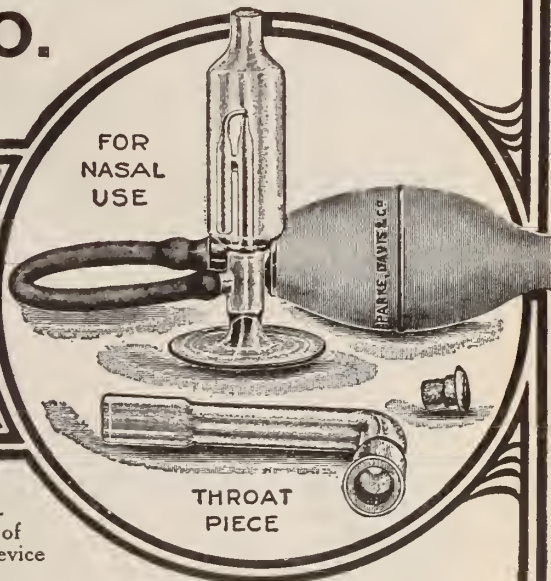
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measures is not looked on with favor. There is here a field of practice, largely left to the quack, but which, Crothers says, should be occupied by the regular profession.

NASAL DIPHTHERIA.

Nasal diphtheria is often overlooked, in the opinion of I. FRIESNER (*N. Y. Med. Jour.*, May 11, '07). The patient does not seem very sick, has only a slight rise in temperature, little change in pulse or respiration, and eats well enough. Such children may be credited with only a cold in the head. Sometimes the nasal discharge is confined to one side, and the vestibule on that side, together with the lip, is slightly swollen. The cervical glands are not always enlarged. There is generally a discharge of yellow, glairy mucus, which may later become greenish. There may be sneezing, but not so commonly as in coryza. Beyond these symptoms there is little discomfort. At first the nares show only an acutely inflamed mucosa, later there is a more or less typical membrane. The danger lies in not recognizing the lesion, and in the infection which may result from such ignorance.

CAUSES OF INSANITY.

GEORGE H. SAVAGE (*British Medicine*) believes the following to be the chief causes of insanity, and says: to sum up, heredity has a small share in the causation of general paralysis; it is more frequently seen in relationship with melancholic than maniacal states. This has some connection with the longer life of persons nowadays. They not infrequently show the weight of years in mental depression. Melancholic states are much more likely to recur in families than maniacal disorders; all forms of insanity, especially sensory hallucinations and their resulting delusions with fixed obsessions, are chiefly dependent on hereditary taint; moral imbecility and asocial and criminal tendencies often arise in very neurotic families.

Idiocy, mental weakness, and eccentricity are common in the children of physically decadent parents.

There is no such thing as transmission of any form of insanity direct, but there is a distinct danger of the passing on of a nervous instability which leads to mental disorder resulting from slight or even normal physiological strain.

Insane parents may have sane children. Congenital alone does not produce mental disorder.

Eccentric and nervous (not insane) parents may give rise to whole families of idiots or defectives.—*Ill. Med. Bulletin.*

SURGERY.

RUBBER GLOVES.

ROBERT T. MORRIS (*Medical Record*, March 9) says that rubber gloves lead to slow work, which further reduces the natural resistance of patients. He declares that what the patient needs is simple, quick work, which merely turns the tide of battle between bacterium and phagocyte. We need discrimination more than we need rubber gloves. Rubber gloves, the writer says, may be useful in cases in which there is no infection of other disease to call out the patient's natural resistance to infection in cases in which dressings are to be changed for several patients in succession, or when the surgeon operates upon an uninfected patient shortly after operation upon an infected one. Rubber gloves are not needed—or

worse than that—in cases in which infection is already under way, when a disease like cancer has already called out such a degree of protection that a breast could be amputated and primary union obtained under "well-waxed shoemakers' thread" that had been held in the mouth, or when no infection or other disease is present, but where slow operating in gloves will allow more bacteria to fall into the wound than would be carried in by well-prepared bare hands.

CONTUSIONS OF THE ABDOMEN.

GILLIAM (*Monthly Cyclopaedia of Practical Medicine*), writing on "Contusions of the Abdomen with Visceral Lesions":

The difficulty lies not so much in what to do with the visceral lesion, for here there is practical unanimity of opinion among all progressive surgeons, but how to determine whether or no a visceral lesion exists. The signs and symptoms of an intra-abdominal lesion are not only at times misleading, but quite frequently wanting, so that a most serious and fatal lesion may be attended by no symptoms until general peritoneal infection sounds the knell of lost opportunity. The generally recognized signs and symptoms of abdominal contusion are pain, shock, vomiting, blood in the vomitus, stools or urine, arrested peristalsis of the bowels, muscular rigidity of the abdominal walls, tenderness localized or general, and disappearance of the area of liver dullness, the latter appearing early is among the most valuable of symptoms, but as a late symptom and to be classed with the evidence of peritoneal infection. I shall not consider these *seriatim*, for there is little to be learned from them. Those upon which I would lay most stress as indicative of visceral involvement are:—

- (1) Prolonged or increasing shock.
- (2) Persistent vomiting.
- (3) Arrested peristalsis.
- (4) Muscular rigidity of the abdominal walls, general or localized.
- (5) Tenderness on deep pressure.
- (6) Blood in the vomitus, stools or urine.

Of these Nos. 1, 4 and 6 are most to be depended on. There may be no vomiting or vomited blood from a ruptured stomach, the contents escaping into the peritoneal cavity. The more serious the trouble, the more likely this is to be the case. There may be no blood from a ruptured bladder for the same reason. The bladder should always be catheterized at the first examination.

It is not to be denied that the death-rate from neglected visceral rupture is appallingly great, the recoveries being exceedingly few. It is equally true that with and in spite of operative interference, especially where a systematic search for the seat of the lesion has to be made, the mortality is still high. In view of this latter and of the uncertainty in many cases as to whether visceral lesion exists, many surgeons and most general practitioners prefer to treat all doubtful cases expectantly. It would seem, then, that we are in a dilemma and must continue to grope blindly as our predecessors have done, consigning many valuable lives to untimely graves because of inaction on one hand or inopportune interference on the other. Happily there is a way out of this, which, though not infallible, is applicable to so large a number of this unfortunate class as to be a veritable boon. And happily it is a measure almost devoid of danger. I refer to the simple, exploratory abdominal incision, to determine whether or no a visceral

lesion exists. It is a well-demonstrated fact that any fluid or extravasated matter in the peritoneal cavity will almost invariably present itself under the line of incision where the cavity has been entered, being forced there by the intra-abdominal pressure, and it is on this principle that abdominal drainage can be effected against gravity. I have seen a large collection of pus in the pelvic cavity drained through an opening in the belly so completely that at the autopsy not a spoonful remained. It follows, then, that in many cases at least a simple incision through the abdominal wall will be all that is necessary to reveal even a small extravasation through a ruptured viscus.

OBSTETRICS.

THE TREATMENT OF ECLAMPSIA.

JOHN C. HIRST (*The Lancet Clinic*), presented the following conclusions as to the treatment of eclampsia, based upon the cases at the University of Pennsylvania Maternity. The routine treatment consisted of:

1. Chloroform, to avert the attack, if possible.
2. Fifteen minims of fluid extract of veratrum viride, hypodermically.
3. Wash out stomach, and through the tube introduce two ounces of castor-oil and four drops of croton-oil.
4. Hot vapor bath or hot pack for thirty minutes in every four hours.
5. Hypodermoclysis of one pint of salt solution under breast every eight hours.
6. If convulsions recur, repeat veratrum viride in five minim doses every hour for three doses, and then if blood-pressure is still high and patient cyanotic, venesection is performed, removing eight to sixteen ounces of blood.
7. Under ordinary circumstances let the labor alone.

Morphine and pilocarpine are not used routinely, but their use is restricted to desperate cases only. Venesection is not used routinely, at least until veratrum viride has been given a trial. Accouchement force is used only under three conditions:

1. When the patient is far advanced in spontaneous labor, forceps are applied.
2. If patient is seen very early after the first onset of convulsions, it may be advisable to interfere.
3. If patient is going from bad to worse under treatment, the uterus is emptied as a last resort. The method employed is either vaginal hysterotomy and forceps or the Pomeroy bag, followed by forceps. The latter method is probably the better.

The cases studied were 88 cases of eclampsia and 278 cases of albuminuria. This treatment gave a mortality, excluding cases brought in a moribund condition, of 13.4 per cent. Of the cases of albuminuria, 40 had had eclampsia in previous labors (one four times), but escaped under treatment.

SOCIETY MATTERS.

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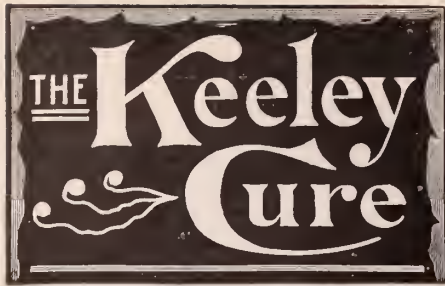
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RUTLAND COUNTY MEDICAL SOCIETY.

The Rutland County Medical and Surgical Society observed its annual meeting with an outing July 9 at Lake Bomoseen attended by 30 physicians and their ladies. The ladies enjoyed a boatride while the men were listening to discussions on medical topics. These officers were elected: President, Dr. A. H. Bellrose, Rutland; vice-president, Dr. J. F. Estabrook, Brandon; secretary, Dr. C. F. Ball, Rutland; treasurer, Dr. H. R. Ryan, Rutland; board of censors, Dr. H. F. Martyn, Cuttingsville, Dr. S. W. Hammond, Rutland, Dr. C. W. Peck, Brandon; auditor, Dr. D. G. Marshall, Wallingford; delegates to State convention, Dr. A. D. Parkhurst, Fair Haven, Dr. C. B. Ross, West Rutland, Dr. O. C. Baker, Brandon, Dr. H. L. Manchester, Pawlet, Dr. W. W. Townsend, Rutland. The affair terminated with a banquet with Dr. C. W. Strobell of Rutland as toastmaster.

LAMOILLE COUNTY MEDICAL SOCIETY.

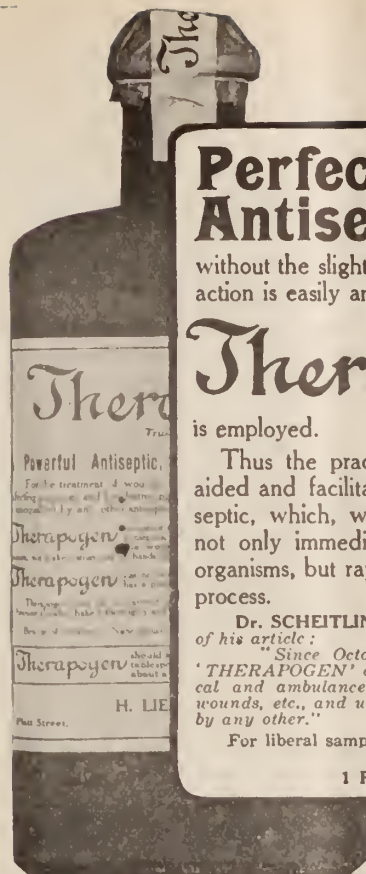
The meeting of the Lamoille County Medical Society held at Morrisville, July 10, was the most largely attended of any since the organization of the society. The following officers were elected for the year ensuing: President, Dr. Geo. L. Bates, Morrisville; vice-president, Dr. R. G. Prentiss of John-

son; secretary and treasurer, Dr. S. G. Start of Cambridge; delegates to the Vermont State Medical Society, for one year, Dr. J. C. Morgan, of Stowe; for two years, Dr. Geo. C. Rublee of Wolcott; censors, Dr. E. A. Nichols of Jeffersonville, Dr. G. H. Newton of Cambridge, and Dr. G. E. Woodward of Morrisville. The following programme was given at the meeting: Dr. Wyeth E. Ray of Hartford, Conn., medical director of the Travelers' Insurance Co., gave an address on insurance examinations and fees for the same. Dr. Ray was elected an honorary member of the society. Dr. B. H. Stone of Burlington, director of the State Laboratory, read a paper on "Water in its Sanitary Aspect." This paper was discussed by Judge H. H. Powers, Drs. G. H. Newton of Cambridge, read a paper on "Intestinal Disorders of Children." Discussed by Drs. Prentiss, Morgan and Leach. Dr. G. H. Newton of Cambridge, read a paper on "Intestinal Disorders of Children." Discussed by Drs. Prentiss, Brush and Bates. Dr. Geo. C. Rublee of Wolcott was elected a member of the society.

The feasibility of establishing a "dead-beat" list for the protection of the members of the society was discussed and favorably received. Each member of the society will furnish the secretary with a list of the so-called "dead-beats" on his list and he in turn will furnish to the physicians a complete list of the county and the towns surrounding in which they practice.

THERAPEUTIC NOTES.

TREATMENT OF INOPERABLE MALIGNANT TUMORS.—To the medical man has usually fallen the duty of caring for these classes of unfortunate cancer patients and from time immemorial the professional mind has been taxed to discover some means of relief, some agent or remedy which might destroy the abnormal growth. The bromide of gold and arsenic is a remedy which, in my hands, has seemed to prove useful in the treatment of inoperable carcinoma; but I have always used it in connection with other agents. I have had more confidence in nuclein than in the bromide, chiefly, perhaps, because I have had two cures in which I did not use the bromide, while I have had none where nuclein was not used. I have come to consider the administration of nuclein and the bromide of gold and arsenic together as a most rational and valuable treatment in cases of inoperable carcinoma. It is the combination upon which I depend rather than on either agent singly. In cases



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of carcinoma of the stomach the local treatment consisted of the use, by mouth, of a 2 per cent. solution of *Hydrozone*. The patient was told to drink half a pint of this solution half an hour before meal-time, lie on the back for five minutes, then turn on the right side and remain in that position for 25 minutes. This remedy was given for its antiseptic effect. The internal treatment was nuclein. The dose was 24 grains a day. This time the patient was kept under observation for a month until the symptoms were not quite so severe. The treatment was continued, however, and after several weeks I called to see the patient in another exacerbation of her symptoms; but this time they were not so severe. After a few days I dismissed her again, with advice to continue the nuclein, *but to omit the Hydrozone*. Some five months later I called to see the patient and found her at work about the house. The symptoms and tumor had disappeared and the cachectic look had given place to a more healthful appearance. I did not see her again, but three years later I was informed that she was well and had had no return of the old symptoms. In another case the diagnosis made was probable carcinoma of the cervix. The patient put herself under my immediate care, so that I could watch the case daily. The local treatment adopted was spraying the cervix with full-strength *Hydrozone*, and the daily use of astringent and sterile douches. Internally, nuclein was used in 24 grain doses daily. A nervine and nux vomica were added to control the patient's nervous or unstrung condition. After a month

of this treatment the symptoms did not seem to be so severe. From this time the patient began to improve. In three months from beginning the treatment the hardness of the tissues had disappeared, the cauliflower appearance was removed and the pain and other symptoms had entirely subsided.—*J. M. G. Carter, M. D.*

THE NURSING MOTHER.—The extra burden which a nursing mother has to bear, often places a greater tax on her strength and vitality than she can successfully meet. Rational treatment aims at an increase of her vital physiological functions, and a corresponding increase in her physical strength. No remedy has a more positive value for this purpose than Gray's Glycerine Tonic Comp., and to many a physician it is the one tonic that meets every requirement in such conditions, as it is not only remarkably effective but has no contra-indications.

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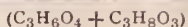
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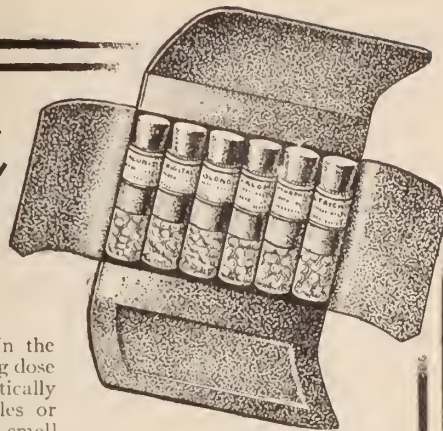
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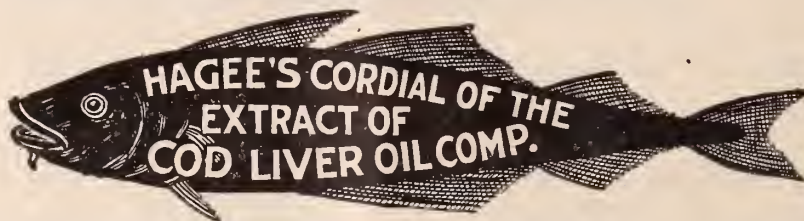
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ORIGINAL ARTICLES.

MEDICAL EDUCATION IN AMERICA AT THE PRESENT DAY.

By John B. Wheeler, M. D., Professor of Surgery, University of Vermont College of Medicine.

The wording of the above title is advisedly chosen, for in this country medical education is undergoing reconstruction and it changes almost from day to day. The plan of instruction of five years ago is not the plan followed one year ago, and the methods of last year differ from those of this year. "The present day" therefore, is an appropriate phrase to use regarding a consideration of modern methods of teaching medicine.

For the sake of contrast, let us first consider the methods of a generation ago. At that time medical education consisted of three years study with a preceptor and two sets of lectures, of twelve weeks each. For a period of three years the student was supposed to be studying in the office of a physician. The preceptor gave the student the use of his library, showed him cases and how they were treated and quizzed him on the results of his reading and observation. When both preceptor and student were of the right sort, this was a good preparation for the practice of that time, but carelessness on both sides often made the relationship between preceptor and student only a nominal one and it often happened that a student presented a certificate of three years study in a doctor's office, which really meant nothing except that three years ago the student began to call the doctor his preceptor.

The lectures covered the whole field of medicine in twelve weeks. There was no attempt at grading the course. The second set of lectures was a repetition of the first. The lectures were arranged as suited the convenience of the professors and the beginner was as liable to have his first day filled up with lectures on obstetrics, practice, anatomy, chemistry and surgery as with any other arrangement of subjects. There was no laboratory work, except a little dissecting. The clinical work consisted of the exhi-

bition of medical cases and the performance of surgical operations before the class,—the class meaning the entire student body and not any particular portion of it. The cases and operations were more or less thoroughly explained, but students were not called upon to examine or discuss them. A student was supposed to obtain his practical knowledge from his preceptor, a gentleman with whom he sometimes did not have ten minutes conversation in a month. No recitations were held. The course consisted entirely of didactic lectures and a few clinics. The student was not expected to make any personal effort to acquire knowledge. He was looked upon as a receptacle for information which was poured promiscuously into him by his instructors.

At the end of the second course of lectures an oral examination was held, each professor examining on the subject which he taught. This test seldom erred on the side of severity, and if the total mark obtained by the student was above a certain figure, he was held to have passed the examination and was entitled to his diploma. Under this arrangement, a student might know almost nothing of some subjects and yet obtain a diploma in spite of his ignorance, if his marks in other subjects were high enough to give him the required total.

The average result of this method of instruction was never satisfactory and, as time went on, it became more and more evident that different methods must be employed. One radical change after another was made, until at the present day medicine is taught in a way no more like that of a generation ago than an automobile is like a wheelbarrow. Some of the changes are as follows:

1. LENGTH OF THE COURSE. Instead of the old course, consisting of two sets of lectures of twelve weeks each and three years of registration and nominal study in a doctor's office, the student now has to spend four years in a medical college, each college year consisting of at least seven months. In each one of his four years, therefore, he gets more instruction than was given in the entire course of study in his father's time.

2. REQUIREMENTS FOR ADMISSION. A generation ago requirements for admission to

a medical college did not exist. Anyone who chose could take up the study of medicine. Nowadays no reputable college will admit a man who has not graduated from a high school or who cannot pass an equivalent examination. Many colleges have begun to require at least one year in the department of arts or science of a university, while some require that every matriculant shall have the degree of A. B. or B. S.

3. GRADING OF THE COURSE. Instead of the promiscuous instruction already alluded to, the different subjects are now taught in orderly sequence. The student now has to be acquainted with anatomy before he can take up surgery, with physiology and materia medica before he can take up therapeutics and with pathological anatomy before he tries to become a diagnostician. Instead of the single oral examination which used to be the sole test of fitness for graduation, written and oral examinations are held at the end of each year and a satisfactory examination in *every subject* must be passed before the student can take up the studies of the following year. In this way graduation without a satisfactory knowledge of every subject is rendered impossible.

4. LABORATORY WORK. The enormous increase in laboratory work is one of the most striking features of modern medical education. Nowadays, beside his dissecting, the student must himself experiment in the laboratories of physiology and chemistry, must learn the use of the microscope in normal and pathological histology, must acquire some familiarity with bacteriological methods and must make examinations of blood, sputum, gastric contents, feces and urine. The necessity of having well-equipped laboratories is one of the things which so largely increases the cost of modern medical education.

5. CLINICS. Although the clinic was a well-recognized means of instruction a generation ago, it did not occupy nearly so important a position as it does now. Formerly it was regarded merely as a desirable addition to the lecture course; now abundant clinical facilities are an absolute necessity in medical education and students take an active part in the clinics, instead of merely looking and listening while the instructor explains and demonstrates, as used to be the case. Nowadays he requires them to examine and discuss the case themselves and by this active participation in the

exercise, theories and facts are fixed in their minds more firmly than can be done by simply talking to them.

6. RECITATIONS. The importance of the recitation was never officially recognized under the old method of teaching, although the number of private quiz classes which flourished then showed that the advantages of reciting were appreciated by the students. Nowadays a large part of the regular course of instruction consists of recitations.

7. LECTURES. Medical educators have become so impressed with the importance of laboratory, clinical and recitation work, that the didactic lecture is falling into disuse in some quarters. Most educators, however, believe it to be of value, though few, if any, would give it the position of pre-eminent importance which it used to occupy. Its great advantages are economy of time and the opportunity which it gives the instructor to arrange his course systematically. The disadvantage is that the student is a passive listener and is not in a position to learn so thoroughly and practically as if he were doing more of the work himself. The above mentioned advantages, however, are so great that it is probable that the didactic lecture will always have a place of some importance in medical education. It is nominally discarded by some instructors, but actually is more or less employed, even by them. The writer remembers a recent occasion, on which he asked a well known professor of surgery for permission to attend one of his lectures. The reply was, "I don't give any lectures. Our course consists of clinics, recitations and practical work. I should be happy to see you at my clinic tomorrow morning." The invitation was accepted and the following events were witnessed. The professor sent a student behind a screen to examine a patient and while waiting for the student to report, asked some questions of different members of the class about the preceding clinic. Presently the student wheeled the patient in on a truck and announced that he had a case of tuberculosis of the knee. The professor examined the joint, asked the student some half a dozen questions and then turned to the class and spent half an hour in delivering an admirable lecture on knee-joint tuberculosis. The patient lay there with his knee uncovered, but so far as referring to him or demonstrating his condition was concerned, he might as well have been in his bed in the ward. The

professor considered the exercise a clinic, but his talk was practically a didactic lecture except that the subject was suggested by the case in hand instead of coming in its appointed place in a systematic course.

It appears, then, that medical education at the present day, as compared with that of former times, is characterized by a much higher standard of requirements for matriculation and for graduation, by a much longer course, properly graded, by the much larger number of subjects taught, by the great importance attached to laboratory, clinical and practical work and by the comparatively small esteem in which the didactic lecture is held. The idea which pervades the present system of medical education is that the student should learn, so far as possible, by seeing and doing things himself; the duty of the instructor being to direct him so that he may attain this and with the least possible waste of time and labor.

The carrying out of this idea is one of the greatest improvements which has taken place in the teaching of medicine. But it has increased the cost of medical education immensely. It demands laboratories which are expensive in their construction and equipment, clinics which require the plant and funds of a hospital to maintain them, and a numerous corps of instructors. A large class cannot as a whole, receive this kind of instruction. It has to be divided into sections, and this increase in the number of bodies to be taught necessitates an increase in the number of teachers. Thus with laboratories, clinics and extra instructors, a great increase in expense is unavoidable, and the expense is still farther increased by the lengthened course of study. The consequence is that medical education at the present day costs four or five times as much as it did a generation ago. At that time the students' fees furnished funds enough to run the college well and pay good salaries to the professors. Now expenses have increased so much that a medical college cannot be properly conducted without some source of income other than the tuition fees.

It is impossible to say what farther changes will be made in the teaching of medicine. The present tendency is to raise the requirements for matriculation and graduation still higher and to lengthen the course still more. Whether we have not almost reached the limit, at least as regards the education of men who expect to prac-

tice in small villages, is a question which will perhaps bear discussion. But we may rest assured that medical education at the present day is a great advance on anything which has preceded it, that its faults are in a fair way of correction, that in spite of them, it is well worth the great expenditure of time, labor and money which it demands and that the graduate of 1907 is far better fitted to practice medicine than was the graduate of 1874.

PRELIMINARY EDUCATION.

By Henry C. Tinkham, M. D., Dean of the University of Vermont College of Medicine, Burlington, Vt.

In discussing the standard of education which should be required preliminary to the study of medicine there are several points to be considered, viz.:

FIRST. Does a high standard of general education increase the possibilities of attaining a high standard of medical education?

SECOND. Is there any limit to the amount of general education which is of use in acquiring a medical education?

THIRD. Is it possible to maintain so high a standard of education that the results will be to the disadvantage and injury of a considerable part of the people of the country?

FOURTH. What standard of preliminary education is it necessary that the average man or woman have in order to study medicine understandingly and practice medicine satisfactorily?

There can be no question that general education increases the mental capacity of the individual, or that a high standard of education makes it possible to become more proficient in the study of medicine. All the sciences are so correlated to medicine that a thorough knowledge of them must be of great help, if not a necessity, in acquiring a thorough understanding of medicine and surgery. The man who has a knowledge of physics is in a position to understand the application of the principles of physics in medicine better than the man who knows nothing of the subject, although he may have mastered it from a medical standpoint. The more thoroughly the principles of mechanics are understood the easier most of the questions involving injuries and deformities of the trunk and extremities are solved, etc., etc.

Although the sciences are so closely related to medicine, and their principles are so thoroughly incorporated in medicinal science, and although a knowledge of the languages makes the study of medicine easier and more comprehensive, there must be some point beyond which a general education ceases to be of material value in acquiring a medical education, or practicing general medicine satisfactorily. For instance, how much better could Mr. Edison with all his knowledge of electricity and its application determine its influence on the neurons than could a man who simply had a general knowledge of the subject? How much would a knowledge of mechanics in all its departments help a physician in making the application of the first principles of mechanics—fulcrum, power and resistance in reducing a dislocation or correcting a deformity? To what extent would an intricate knowledge of refraction be of service to the general practitioner, etc., etc?

The standard of general education, preliminary to the study of medicine, must be consistent with the standard of medical education required. It probably is true that a college course fits a man to acquire a knowledge of medicine easier, and also to attain a greater degree of proficiency in the subject, and, other things being equal, to be a more skilled practitioner of medicine. Then certainly it would seem that the general public would be better served if all the physicians were college graduates, and all attained the more perfect standard of medical education which makes this possible, but is this necessarily true? Is it probable that the men who have spent four years at college, and four, five or six years in medical study and hospital work would locate in the thousands of small towns scattered all over the country? Could they afford to do it? Could the people living on the small farms afford to pay more for physicians than they are now paying? In the discussion of higher medical education, has the ability of the common people to pay more for the services of a physician been considered, or has it been with the idea of producing a high grade physician regardless of whether the people could pay for his services or not? Perhaps it is not a question of whether the people can afford to pay or not, but rather what quality of medical service it seems best that they should have. It certainly would be a question with the physician who was looking for a place in which to locate

whether or not there was an assurance that he could receive a reasonable remuneration for his services, taking into account the time and money his profession had cost him. If the people living in and about the small villages could not offer sufficient financial inducement for a physician to live among them, and they were obliged to depend upon the physicians living in the larger towns, ten, twenty or more miles away, would their condition be improved even if the physician from the larger town was more thoroughly educated? We believe it would not. It would be decidedly to their disadvantage and injury.

While it is apparent that there is a demand for more carefully and thoroughly educated physicians and it is also true that probably there are physicians graduated with altogether too low a standard of education, it would seem that there should be a standard of educational requirement sufficient to make them competent physicians and at the same time consistent with their living in the country villages and practicing among the common people. What standard of preliminary education is necessary and should be required to fit these physicians to practice medicine satisfactorily? A standard which is too low will produce inferior physicians, because they cannot have a satisfactory knowledge of medicine without a certain amount of knowledge of subjects which are closely related to medicine, and too high a standard will also have its disadvantages.

A logical standard of preliminary education is the high school course. It is unfortunate that general education is not regulated by a common standard. A high school diploma should represent the same standard of education in all states, the standard being fixed by an interstate commission. A four years' high school course, which includes laboratory chemistry, physics and Latin, is a sufficiently high standard of preliminary education to prepare the average man or woman to thoroughly comprehend the subject of medicine, and to be able to apply the modern methods of investigating and treating disease.

It is perfectly right that opportunity be given to acquire any degree of general education before taking up the study of medicine, and that there should be medical schools which require a college degree preliminary to the study of medicine, and that these colleges maintain such standard of medical education as they

choose. It is not logical that the same standard of preliminary education be required for all medical schools, or that too high a standard of minimum requirement for preliminary education be fixed, for a country with a population having such widely varying conditions as the United States must need physicians of as widely varying qualifications, and a standard of preliminary education which is sufficient to make the study of medicine comprehensive is all that should be required as a minimum requirement of general education preliminary to the study of medicine.

POST-GRADUATE STUDY IN THE UNITED STATES.

By Godfrey R. Pisch, M. D., Associate Professor of Pediatrics, New York Post-Graduate Medical School and Hospital, Professor of Pediatrics, University of Vermont College of Medicine.

Some years ago the European clinics, especially the German classes were overcrowded with American students. Many of them had only a smattering of the language and listened to the pantomime of the Professor, gaining what knowledge they could, mainly, by observation.

A group of clinical professors belonging to the New York Medical Colleges, recognizing the needs of their colleagues who were coming to the city in search of further medical instruction, organized and founded the first Post-Graduate Medical School in the United States. How wisely they planned, is evidenced by the success of this particular school, and the increasing number of similar schools in many of our large cities.

Men from the Eastern States had been in the habit of going to the European medical centers for their further instruction, but the men from the middle west, the graduates from the smaller medical colleges found themselves professionally crowded and surpassed by the foreign born physicians, who were attracted there by emigrant population. These local men recognized their failings and deficiencies, and eagerly grasped at the chance to go to school again, and acquire the advanced methods of the healing art. Post-graduate medical schools were thus soon recognized as a neces-

sity, and attracted to their faculties men of stamp and ability as teachers. That there is to-day no necessity for the general practitioner to go abroad to study, is a well recognized fact. Our post-graduate schools have lately served as models for the new institutions erected in Germany and England. It has been rightly said that the cradle of the post-graduate study is in America. In our large cities there is an abundance of clinical material for teaching purposes, and hospital facilities are more than sufficient for bedside instruction. In New York City for example, there are some 5,000 beds in the general hospitals, and 3,090 more in the special institutions, as those for the eye and ear, or babies' hospitals. Foreigners visiting our shores are astonished at and become enthusiastic about our medical possibilities. Dr. Pozzi of Paris, while visiting America said "that we did not get around to see each other work enough and urged that we should do so, instead of traveling abroad to acquire methods not so good in many cases as he had observed here." Again, Osler in an opening address before an English faculty and their students said "meanwhile to students who wish to have the best that the world offers, let me suggest that the lines of intellectual progress are veering strongly to the West, and I predict that in the twentieth century the young English physicians will find their keenest inspiration in the land of the Setting Sun." Granted then that the doctor has decided to take up post-graduate study at home, how shall he arrange his work to obtain the greatest good? Many of the men have told the writer, "I am coming back again, but another time, I will know just what I want, and how to arrange for it."

The matriculates at our schools may be divided into four classes; general practitioners, recent graduates, specialists (or those desiring to specialize, and teachers. Each group has its own particular needs in post-graduate instruction.

The practitioner who has been successful and very busy finds that his good intentions to "keep up to the times" has resulted in a great pile of unread medical journals. He finds that he has fallen into a rut and suddenly realizes that nothing but study will save him. Such a man comes to "brush up." He should attend all the branches and his aim should be to acquire a working knowledge of the correlated specialties. He will learn how to make

careful examinations and how to use laboratory methods to confirm his findings. The use of the microscope for sputum examinations, the head mirror and the stomach tube which he has been "too busy to use" will be understood and prized as a valuable acquisition. If he has been surgically inclined, he will be astounded at the progress of the art and do one of two things; give up doing major surgery altogether, or go to the anatomical department and learn there to perform the operations as he has seen his teachers do them from the amphitheatre benches. Again men find themselves weak in certain branches; they should make their wants known to their instructors, and co-operate with them in making up the deficiency. For example the expression is heard, "I don't know anything about babies and I hate to see a feeding case come to my office." That man should attend all the clinics in diseases of children, become an assistant in the Dispensary, accompany the attending physician in his daily rounds in the hospital wards, and go to the diet kitchen where the feedings are prepared for the babies, and there put into practice the methods he has been taught. He will then go home and welcome such cases. Six weeks to three months should be spent in this general work. The better a recent graduate has been taught, the more he appreciates his needs. He may have had an excellent training, but no hospital experience, and wishes to perfect his technic in the laboratory methods he has acquired in college, and have an opportunity to apply them to the cases in hospital wards. In other words he not only wishes to know how diagnoses are made, but to make them. He wishes to come properly prepared to the bedside of his patient. As long as the hospital is not made an integral part of his undergraduate teaching, the graduate must seek a hospital or post-graduate instruction.

The doctor who has been doing special work, finds it incumbent to seek the metropolitan centers and see the authorities in his special field at work. He must perfect himself in the newer methods of examination or of operation. In post-graduate schools he should have practically individual instruction; that is, he must be part of a class of not more than six men. He should be supplied with and read the latest literature as mapped out for him by his teacher, and in certain branches work in the anatomical department or in special classes on the living

subject. The specialist should become acquainted with all the leaders in his specialty in the city, and attend the section meetings of the medical societies. If he has acquired a thorough working knowledge of a foreign language, he may then go abroad and he will be in a position to appreciate or to criticize.

And lastly the teachers themselves. No class of men need post-graduate instruction as much as the teachers do. They, however, must find it in their own way. At home he will go about to hear others teach and improve on his own methods. He may find that he will be a better teacher if he studies the fundamental principles of pedagogy. He must not simply teach facts but must develop the student's power of observation and logical deduction. It is almost a necessity for the teacher to go abroad. He will gain much if he imitates the German in his thoroughness in investigations and obstinate perseverance in solving medical problems by attention to details.

As to the schools themselves; many of them will fulfil all the student's requirements as enumerated above. Attend a school removed from your section of the country; let the Western man go East, and the Southerner come North. The teacher from the East not wishing to go abroad can go to Johns Hopkins or to McGill. He will be stimulated by his new environment and return refreshed in body and mind for his chosen work.

POST-GRADUATE WORK ABROAD.

*By John McCrac, M. B., M. R. C. P., (Lond.)
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The value of post-graduate work abroad is often incorrectly estimated, both in the direction of over,—and in that of under—valuation: but its positive benefits are certainly great. Comparatively few men gain any good reading knowledge of continental languages without it, or, if they have the benefit of such knowledge, possess a personal interest in foreign medical literatures unless it is stimulated by some information acquired at first hand of the clinics or the clinicians. Thus even a short residence abroad may open for the rest of his life, to the graduate, a field that he is apt otherwise to leave

untouched, or insufficiently studied. On the other hand, should a student immediately after graduation go to Europe, he is apt to spend much energy on the acquirement of views and methods that will not be as useful for his future career as would be parallel facts learned at home. Perhaps it may be laid down, therefore, that a man is better to have some post-graduate work in his own country before he visits others, because he should be in a position somewhat to choose and think for himself before he ventures into the schools which may teach and practise somewhat differently from his own. A hospital intern's position for a year or two is an excellent beginning, for in that time he will acquire a certain degree of judgment and a certain knowledge of his own requirements, better than under any other circumstances. Should the graduate go first to the practice of his profession, it is also good; but it must be frankly said that the ties of practice are hard to break, and one is never so free to go abroad for study as when he is as yet a comparatively unfixed and freely movable unit. The fact remains, however, that some practice and some maturity of judgment is necessary to take the best that offers in a post-graduate experience in Europe.

The most requisite thing for the American studying in continental schools is this,—to break as completely as possible for the time being from home ideas and home ties, even from the companionship of fellow-countrymen, and to become as much as possible, a part of the school at which he is temporarily a student; to mix with the men of that school, to see their cases, as far as possible, with their eyes and from their point of view: the rest of one's life will be spent, in all probability, in companionship with one's own countrymen, and the short time can be well spared in return for the privilege of getting new sensations and new points of view, to say nothing of acquiring new languages.

Further, it must be said that this point of view is not perhaps the favorite one, but the writer holds to it without compromise: the largest centres are in this respect, not necessarily the best: because the largest centres, or at least some of them, provide what an occasional American student wants,—an opportunity of doing a certain amount of work in Europe, and returning to America with the acquired possession of being able to say that he has studied in

Europe: the large centres are apt to give such an one what they think he wants, and this may not be what he needs. To anyone who goes abroad, with this point of view, it does not much matter what kind of work he gets, and we need follow the matter no farther. But to the man who goes intent to learn for the sake of the knowledge he will find, it is good advice to say, "Remember that the largest school will not necessarily teach you the most or the best."

There are many things to be learned in European educational centres which are not laid down in the medical curriculum; and in saying this, one has no intention of pointing out, like a guide-book, the things "one ought to see," nor is it necessary to dwell upon the wide educational value that continental travel possesses; this is undoubted, and makes no inconsiderable weight in the balance that may decide an European post-graduate course. Rather shall we deal only with that part of post-graduate study that lies within the walls of the university or the hospital. The value of European study to a physician lies not so much in what he sees, as in the spirit with which he sees it, the eyes with which he regards it. To speak plainly, we are far too apt to remember our palatial hospitals and contrast with them the often dingy and sometimes inadequate buildings we see, to the disadvantage of the latter: we are apt to regard a little too seriously some lapse from what we call "surgical technique," and in the light of that, we are inclined to weigh too lightly certain other outstanding facts. Stated otherwise, the spirit of criticism in the observer may prevent a just appreciation of much that is to his advantage. If it be granted that one goes abroad ready to accept gladly what he hears, to make his criticism internally, to smile genially when some youthful intern questions the prevalence of appendicitis in America and to seize with open ear and shut mouth all that he can, there is a wealth of knowledge awaiting him. The greatest lesson that the student can learn is that there are generally many ways of doing well the same thing: and when one can frankly admit the virtues of methods other than his own, he has learned a lesson of tolerance that money cannot represent. The recognition of the fact that every place, where we see good work being done, is a medical centre, quite as central as our own habitat, is very useful: luckily, too, the mere broadening of one's vision is not the only,

though it may be the greatest advantage. A further advantage, too, of the broadened mind is this: that one learns by personal experience to neglect the testimony of men whose work has failed to impress him, and he can pick and choose for the future, knowing that a statement is not necessarily correct because it comes from a foreign source.

As to the acquisition of a certain mass of medical knowledge, there are several ways of attaining that end. The commonest, perhaps, is to go to a large centre, such as Paris, Berlin or Vienna, whither large numbers repair, to take "courses," these are generally very good, and thorough; to one who has had much teaching experience they are apt to seem elementary, and do not differ from the work given to our own final students in a first class American university. This does not often give a very close touch with the patient, although Paris is better in this regard than the others mentioned. The chief objection to be urged is this: one is apt to find and live among so many of his own countrymen that he sacrifices the opportunity to learn the language of the country,—a great and valuable part of the whole undertaking. Often, too, the instruction given is entirely in English. For those who do not know any French or German at all, this at first, is perhaps the only method. The next method is for those who have considerable time at their disposal: it consists of entering a laboratory, undertaking some line of investigative work under the direction of the professor, and confining, for the time, his attention largely to that: the great advantage of this is that one learns laboratory methods and laboratory ways of thinking from the great laboratory nations. It is necessary to possess some smattering of the language to begin, but one advances rapidly, on the same principle as a man thrown into the water learns to swim—because he has to. The professor's lectures may at first convey none of their meaning, but it is surprising how soon one may grasp at least the outlines of the lecture. For such a procedure, the small university towns are perhaps better than the large cities, because one can get closer to the heart of things. The laboratory assistants are less apt to be "gun-shy" in the matter of visiting students. After a few months of such work, one can readily go to other larger clinics and be more freely received and admitted. It is possible in this way, to grasp some, at least,

of the advantages that bless the German student, viz., to gain an insight into the methods that prevail in different universities. Since in Germany the Universities are national, a student may attend which ever of them he chooses: he may take his primary subjects at one, and his clinical work at another, or at two or three others, should he so desire. The fact that the entire system is under the same governance, makes an interchange of the staffs that cannot but tend to prevent "inbreeding," if the term may be used to indicate the tendency towards a university employing as teachers its own graduates: in the broader sense, perhaps all German medical schools are a little "inbred" in the sense that the Germans are not as yet greatly given to "foreign" post-graduate work, and the teaching in any German university is sure to be thoroughly German. But as such, it is necessarily of a high order. The student produced by this process is a study in himself: he probably works less hard than his American brother, he is in some ways a much older man, and in others a much younger boy: as to whether he is a better physician, the present writer cannot say: there is little doubt that, on the average, he is a better trained one. The German takes longer to complete his course, wastes more time in the interval, but the gradual process of "maturity" has its advantages. There are certain characteristics of the German clinic that are unique: the personal objection of the patient to being completely stripped does not enter into the case, and thorough examination is as much expected by the patient as demanded by the clinician: obstetrical and gynaecological practical work is thus much more readily obtainable at times, in fact, one seems to see a lay figure rather than a sentient patient. In pathological laboratories, the national regulations permit of autopsy to a degree unattainable in America or in England: so that morbid anatomy can nowhere be so well studied.

We have spoken of the continental centres, because they are the most frequented by Americans; yet it must not be forgotten that there is much in England that one cannot afford to miss. It must be said at the outset that London in some ways is a disappointing place for the post-graduate student, because there is little of the cut-and-dried post-graduate course to be found: there is little or no provision made for the visiting student in many hospitals; but he

will generally find men as he takes them, so to speak, and can thus get entry to a perfect mine of intellectual gold. The largest city is the best for cases, and the anxious enquirer need not lack if he keeps his eyes open. The London Hospital Dispensary disposes of about 1700 cases on each working day, and while no one wants to be overwhelmed, this vast number can feed the special clinics in a marvelous way. Although the freedom of examination is not to be compared with that on the continent, yet one may venture to say that nowhere will one receive instruction from men who know their cases better than in many London hospitals.

To enter into particular comment upon the best places for different subjects is beyond the scope of the present remarks even if the writer were competent to speak of them, which he is not: if one goes to sit at the feet of this or that great man, he is not infrequently disappointed: yet there will often arise among the juniors some fountain of wisdom of whom he has never before heard the name who will make ample recompense. There will often be found a truly Teutonic disregard, dare I even say ignorance of our own work and literature that is aggravating, but we can console ourselves with the reflection that the greatest loss is his who disregards. The most useful word that one might offer, would be as to the cost of a course in France, Germany or Austria, and it is the most difficult to give. The majority of American students spend as much money in a large European city as in a large American one, and attain perhaps a trifle less comfort thereby, but one who lives cheaply abroad probably lives more comfortably than he does in America. It is worth remembering that to one's German confreres, it matters not one iota whether he spend a hundred marks a week or ten, and the most modest manner of living can not bring the slightest reproach with it, chiefly because it never seems to occur to any student or professor to measure one by one's resources. There is a reverse side to the medal: the worst dressed man the writer ever knew in a German clinic, spoke five languages and was, Teutonically speaking, rich. One dare not judge by appearances.

But the advantages of European study, and they are great, are beyond the reach of many to whom there is yet a word to be said. Post-graduate study can be procured anywhere. It

is a favorite belief of the writer's that wherever there are patients to be treated there can be a post-graduate school of the highest order: to examine a patient as thoroughly as possible, to re-examine him and re-examine him until the physician has extracted every bit of information that eye, hand and ear can give him, to use every method of clinical examination known to him that is applicable to the case, is to establish under his own roof a post-graduate school that possesses nearly all the advantages that any European clinic can offer.

PROFESSIONAL PARADOXES, OR, AN EMINENT PHYSICIAN CATECHISED.

By A. C. Jacobson, M. D., Brooklyn, N. Y.

"Subtract from a Great Man all that he owes to Chance, all that he has gained by the wisdom of his friends, and by the folly of his enemies, and our Brobdignag will often become a Lilliputian." *Colton.*

- Q. What is your name? A. Pecksniff Pickwick.
- Q. What is your profession? A. I am a physician.
- Q. Are you an eminent physician? A. Yes, sir.
- Q. Define the term, "an eminent physician." A. It means a physician who is distinguished above his fellows. Of course the superiority of a man may be merely local; as Johnson says, "some men are great, because their associates are little."
- Q. As a matter of fact, doesn't Johnson's laconism define most of the so-called eminence of your distinguished colleagues? A. True.
- Q. How, for example, may a physician be distinguished above his fellows? A. Perhaps by reason of contributions to medical science which have proved of some, perhaps great, value.
- Q. Can you instance another reason? A. Teaching ability, including the "gift of gab" in all its phases.
- Q. Another? A. Very successful practice, i. e., in a material sense.
- Q. Yet another? A. Important institutional appointments.
- Q. Is that all? A. Extraordinary personality.
- Q. Any more? A. Ability as a technical writer and text-book maker.

- Q. Yet more? A. Operative skill.
- Q. Does that complete the list? A. There is one more reason—diagnostic skill.
- Q. With respect to the first example; is it indispensable in order that one achieve eminence that he be a contributor of something which has proved of great value? A. Not indispensable.
- Q. Have you contributed anything of importance? A. For answer I refer you to my article, published in the Annals in 1900, entitled: "The Rapid Cure of Epilepsy by the Injection of Placental (Bovine) extract."
- Q. Has epilepsy become any less prevalent since that pronouncement? A. I cannot honestly say that it has.
- Q. Who determines that a given contribution is of great value? A. Primarily the contributor himself, then some college or hospital coterie or medical society clique.
- Q. How is the final estimate placed upon these matters? A. Time, and the degree of utilization of methods and principles by the general profession, or, on the other hand, their rejection, constitute the crucible in which they are tried out. But while it is possible to fool part of the profession all the time, and all of the profession part of the time, yet you cannot fool all of the profession all of the time.
- Q. What is the primary motive on the part of the contributor as a rule, I mean? Is it a burning desire to relieve and cure, or is the motive a selfish one? A. I decline to answer.
- Q. On what ground do you decline to answer? A. On the ground that my answer might tend to incriminate me.
- Q. You are not on trial for anything. A. The doctor is always on trial for everything.
- Q. Is it not possible for a man, by reason of personality, and appointments which clothe him in dignity and enhance him in prestige, to attain still greater eminence through clever exploitation of methods and principles which are really unsound? A. If compelled to answer, I concede that your assumption may be true.
- Q. This matter of personality; does not an extraordinary personality constitute, in itself, an asset as great as all the other factors which we have discussed? A. In the last analysis, yes.
- Q. Without extraordinary personality, would text-books or contributions count for much or would teaching ability, successful practice—consulting or otherwise—or even good appointments and the consequent development of operative or diagnostic skill, be nearly so likely of realization in full measure? A. You have stated, interrogatively, a trite truth; one could almost formulate a law on the data at hand.
- Q. In all this, the cure of disease has not been introduced as bearing any relation to the subject under discussion. A. It is not at all relevant. You are seeking to analyze eminence. The theoretical objects of medicine are another matter.
- Q. But I cannot dissociate the two things in my mind. A. That is because your mind is not the medical mind, which is intellectually *sui generis*; its processes appear arbitrary to you, whose mind lacks "medical training."
- Q. Well, never mind that,—you concede that the actual ability to cure disease is not the conventional criterion of eminence in medicine? A. That is so.
- Q. Have you ever "cured" any diseases yourself, speaking literally? A. Speaking honestly, a few.
- Q. Isn't it a fact that the use of the term "cure" is considered rather unscientific, nature herself effecting cures, when they occur? A. Yes, although we endeavor to assist nature in her efforts.
- Q. Strictly speaking, then, the doctor seldom accomplishes what may honestly be considered a "cure," yet in a sense you felicitate yourself upon the fact. A. All true, but you are again encountering that specious thing—the medical mind.
- Q. A moment ago, doctor, you said that you endeavored to assist nature. Endeavor implies laborious effort here, does it not? A. Well, yes.
- Q. Do you wish to change your language? A. I will let it stand.
- Q. Are you a specialist, doctor? A. Yes, sir.
- Q. What leads men into special lines of practice; what is the controlling motive? A. I refer you to my work on "The Psychol-

ogy of Specialism" for a thorough exposition of this matter.

- Q. You don't answer the question frankly. Well, never mind, we will pass on.
- Q. Are your fees moderate, doctor? A. I can't say that they are. I once, in a moment of weakness, charged a moderate fee.
- Q. Was the patient grateful? A. I presume that he was, but he died suddenly in the office.
- Q. You have introduced some new methods into operative technique? A. Yes, sir.
- Q. You have devised a laparotomy sponge? A. Yes, sir.
- Q. Is it a better sponge than Smith's? A. I think so.
- Q. How does it differ from Smith's? A. Smith's is round, while mine is square.
- Q. Do you believe in taking out patents on inventions and discoveries, or in withholding the formulae of secret cures? A. Answering the first part of the question, I would say no, speaking broadly. As a rule there is not enough in these things, financially, to make it worth while violating the code. If there should be, then an understanding may be had with a trustworthy manufacturer or friend, he taking out the patent. Take for example a so-called window-tent for the consumptive. There is such a tent on the market and it enjoys a considerable sale. Its inventor, a distinguished anti-tuberculosis crusader, enjoys surreptitiously the profits from this source. A man who cannot arrange these little matters pleasantly is simply a fool. Answering the latter part of the question, I would say that if such a thing as an actual cure of, say cancer, should be worked out by me, I should certainly withhold it until such time as I had realized enough upon it to prosecute other scientific researches and should make announcement to the profession accordingly, just as Behring did. You understand, of course, that the foregoing would be the *ostensible* reason for withholding the secret. Could you conceive of one more ingenious? I would also advertise the cure. In my case this would not be quackery, for bear in mind that we are assuming a *bona fide* cure. The quack is a

quack chiefly because he makes lying declarations.

- Q. Doctor, speaking of cancer, do you believe that a cure will soon be discovered for this dreadful affliction? A. Well, the rhetoric that is bestowed on the subject is decidedly clever. I published a paper last month in the Archives in which I defy you to find one split infinitive. And think for a moment of what it would be like if we had nothing of which to picture eloquently prophetic visions, nothing upon which to base pathetic appeals and descriptive imagery borrowed from the classics! Nothing lends itself so well to these things as does cancer. There is really a side to this matter other than the one which pertains purely to the concrete victim of cancer's ravages, and a larger side it is, too viewed in proper intellectual perspective.
- Q. In closing, doctor, permit me to digress a little and trench on the commonplace. Is it true that burglars entered your Madison Ave. residence one night last week, as reported in the papers? A. Yes, burglars did break into my home.
- Q. With what result? A. They escaped without losing anything.
- 115 Johnson Street.

THE DIFFERENTIAL DIAGNOSIS OF PEPTIC ULCER, CHOLELITHIASIS AND PANCREATITIS.*

By C. F. Ball, M. D., Rutland, Vt.

It is not the purpose of this paper to deal exhaustively with this subject; it is only hoped that a widow's mite may be added in the way of calling attention to the several newer clinical tests recently at our command. Much has been said upon the subject of the differential diagnosis of peptic ulcers and cholelithiasis. Pancreatitis has to be considered as one of the serious diseases involving the same area of the epigastrium. "We would not be far wrong if we said that cholelithiasis cannot last for any length of time without involving the pancreas." "All varieties of pancreatitis have been observed in the course of biliary lithiasis, namely, the acute form, intraglandular hemorrhage, localized necrosis or suppuration, peripancreatic abscess and chronic pancreatitis." Thus

*Read before the Rutland County Medical Society.

severe trouble definitely located within the triangle below the ribs and above the horizontal line drawn through the umbilicus, demands us to differentiate between one, or a combination of one or more of the three diseases, peptic ulcer, cholelithiasis and pancreatitis.

It is not the purpose of this paper to deal with anything more than a few clinical aids in the differentiation of this trio of diseases. The stiology and treatment are not to be considered, and we are to deal with the pathology only in so far as it has to do with the making of the clinical tests.

It is to be understood that all reflex disturbances, sensitive sympathetic nerve-centers, the more common and readily diagnosed diseased conditions, and a probable malignant growth of the stomach, are quite definitely excluded. The gall-stone trouble in general refers solely to the symptoms produced as a result of their mechanical obstruction to the bile ducts. The pancreatic condition may be either the acute or chronic form.

That pain and tenderness are not reliable symptoms is readily shown by the variability of their manner of expression as "when the pain or perforated doedenal ulcer is felt in the right iliac fossa, because the contents of the bowel gravitates to that region and sets up local irritation," "as when the pain and tenderness in appendicitis occur in the epigastrium or upon the left side and not in the right iliac fossa at all," "when pain and tenderness occur in the epigastrium in cases of ulcer in a displaced stomach. Then the pain and tenderness are where one would expect them to be if the stomach was in place, not where the ulcer really is. Still another example is the varied distribution of pain in cholecystitis." (Progressive Medicine, Vol. VIII. p. 94.) Accordingly we have to look for more reliable means of diagnosis as found in clinical examinations, thus fortifying our symptomatic findings.

The differential diagnosis between peptic ulcer and cholelithiasis may be readily determined, quite accurately, by the use of orthoform in eight grain doses. Orthoform being a local anesthetic immediately allays the pain in any condition in which the integument or mucous membrane is abraded to which it is applied. Thus, when giving in a suspected case of peptic ulcer, it produces an immediate relief to the acute pain incident to this condition. It takes only fifteen to thirty minutes for orthoform

to act. As soon as the pain is relieved, we may be quiet sure that there is an erosion of the mucous membrane of the stomach, for orthoform given in this dose produces little or no effect in the normal stomach. Therefore when we get relief from the use of this agent, along with the other symptoms characteristic of peptic ulcer, we may feel sure of our diagnosis, but not of the exact location of the lesion.

Hemmeter, in a recent article "Recent Studies In Diagnosis Of Gastric Ulcer," read before the Gastroenterological Association last June, described a unique, but valuable method of not only differentiating peptic ulcer, but of actually locating the same. He uses a solution of bismuth sub-nitrate taken into the stomach and allowed to remain for a short period, about 15 minutes. The stomach is then washed quite thoroughly with cold water. The patient is then examined with the X-ray. Bismuth casts a shadow with the X-ray. Thus it is readily seen that the bismuth deposited within the crater of the ulcer definitely locates the lesion by the shadow cast. It is to be admitted that some take issue, notably Dr. Billings, with the lack of accuracy of medical methods in general in interpreting the meaning of a skiagraph, or the picture on the flourosopic screen. With this personal equation eliminated there is no question but that Dr. Hemmeter's method is very useful.

The differentiation between gall stone trouble and pancreatitis depends upon the determination or exclusion of the latter. The pancreatic golden yellow crystals. The presence of sugar or exclusion of the latter. The pancreatic reaction of Cammidge is of importance. His method of examination to prove the presence of certain products in the urine is as follows:

To 10 c. c. of filtered urine is added 1 c. c. of strong hydrochloric acid boiled gently ten minutes on a sand bath. A mixture of 5 c. c. of distilled water is then added and the whole cooled in running water. To this are now added two grms. of sodium acetate and 0.75 gm. of phenylhydrazin hydrochlorate and boiled from three to four minutes on a sand bath. It is then poured into a test tube and allowed to cool undisturbed, when a flocculent precipitate is formed, consisting of rosettes of golden yellow crystals. The presence of sugar or albumen must be previously gotten rid of as the substances interfere with the process and the results. As somewhat similar results are

obtained in patients suffering from certain diseases in which active tissue changes are going on, a differentiating test must be applied which consists in taking 20 c. c. of filtered urine and adding 10 c. c. of saturated aqueous solution of mercuric chlorid, filtering. To 10 c. c. of the filtrate add 1 c. c. of strong hydrochloric acid and boil as in the former process. It is then diluted with 5 c. c. of the former filtrate and 10 c. c. of distilled water cooled and treated as in the former instance.

The practical results of these examinations of the urine by these two methods, Cammidge summarized as follows: "If no crystals are obtained by either method the pancreas is not at fault, and the explanation of the symptoms must be sought for elsewhere. If crystals are obtained by the first method and not by the second, active inflammation of the pancreas is present and surgical interference is generally indicated. In acute inflammation of the pancreas, the crystals are fine and dissolve in a 33% solution of sulphuric acid in about 30 seconds. In chronic inflammation the crystals are coarser and dissolve in one or two minutes. In malignant disease the crystals are very coarse and require from three to five minutes to dissolve. In chronic inflammation the crystals are smaller and dissolve in from one to two minutes. In non-pancreatic disease the crystals dissolve in one minute. Thus it seems that the size of the crystals and their solubility are directly dependent on the acuteness of the inflammatory process." (New A. M. A. Jour. p. 2012.) This is rather of an elaborate process and one that I think more feasible to the use of the general practitioner is the use of Sahli's glutoid capsule. The test is as follows: (Taken from a leaflet published by the committee on the Clinical Exhibit of Fasces A. M. A. Association, Boston, June, 1905.) "Sahli's glutoid capsules are made with gelatin and hardened with formaldehyde or formalin gas. They are unaffected by the gastric juice, but are readily dissolved by the pancreatic ferments. After the administration of such a capsule containing 0.15 gms. of iodoform, the reaction for iodoform may be obtained in the saliva when the pancreas is unaffected. The tests should be positive in one or two hours providing there is no pyloric obstruction.

"Test for iodine. Add to a few c. c. of saliva five or ten drops of nitric acid and the

same amount of chloroform and shake gently. If iodine be present a rose red or violet color will form in the chloroform layer. The presence of iodine in the saliva or urine shows that there is a secretion of pancreatic juice. These capsules are also made up containing 0.5 gm. of salol. Three drops of ferric chlorid are added to a small quantity of urine, which gives a characteristic dark or black color whenever the pancreas is unaffected. Anyone having obtained these capsules, can readily make this test for themselves and ascertain quite definitely whether the pancreas is diseased or not, and to what extent, by the length of time required to obtain the first positive result, if obtained at all, as in a very serious pancreatitis there is no test. I swallowed one of these capsules myself, and obtained a definite iodine reaction in from 15 to 20 minutes. I noticed no inconvenience other than a peculiar taste in the mouth, and a slight increase of salivary activity. Schmit's test may be used to advantage. By these tests we have quite accurately diagnosed two of the three diseases, by reliable clinical tests, allowing us to make the third by exclusion."

It will be found only necessary to use some or all of these tests in differentiating between these three diseases only in a very small percentage of all cases, as only a few of them are so blind in their symptomatic expression that it becomes necessary to resort to such complicated procedures. Nevertheless it is always our duty to give the patient our best. We are usually repaid in putting forth our best efforts in the satisfaction we have after making a careful diagnosis, in either seeing our patient improve or knowing that we have done our best if the case is hopeless.

In conclusion I wish to speak of a specimen taken from a case in which some of these tests were made. This is a case of complete biliary obstruction due to a malignant growth involving not only the gall bladder but a considerable portion of the liver substance itself adjacent to the gall bladder, the whole course of the common duct and tissues beneath the under surface of the pylorus, and the head of the pancreas along with the adjacent glands. The peculiar feature of this case was the fact that never in its history was there any pain or discomfort, or even tenderness upon pressure. At site of tumor not even the tumor being definitely determined, the diagnosis of gall stones was made

and an operation advised, but on account of the failing condition of the patient, abandoned only to find on autopsy this mass. The case

was of a woman unmarried, temperate habits and of a good family and 60 years old.

CHARACTERISTIC SYMPTOMS.

	<i>Hem.</i>	<i>Stools</i>	<i>Urine</i>	<i>Blood</i>	<i>Clinical Tests</i>
<i>Peptic Ulcer</i>	often severe; usually slight	black and may have occult blood	usually neg.	depleted	orthoform 8 gr. x-ray.
<i>Cholelithiasis</i>	neg.	clay or normal, possibly stones.	bile	variable leucocyte count	by exclusion
<i>Pancreatitis</i>	variable to very severe if hem.	black if hem. Clay duct obst. full of fat. May have sugar.	pancreatic reaction of Cammidge. Bile if duct obst.	variable leucocyte count.	Cammidge's reac. Sahli's glutoid capsules Schmidt's nucleol test.

COMMON SYMPTOMS.

	<i>Pain</i>	<i>Tend.</i>	<i>Vom.</i>	<i>Colic</i>	<i>Temp.</i>	<i>Jaundice</i>	<i>Tumor</i>
<i>Peptic Ulcer</i>	acute cutting	very	not frequently.	often very acute	slight elevation.	may have not usual	slight thickening of st. wall.
<i>Cholelithiasis</i>	acute or radiating	variable	may or may not	intense	moderate temp.	may or may not	variable size
<i>Pancreatitis.</i>	variable	some	may or may not	not of itself only by obst. to common duct.	variable	may not have still quite frequent	variable size

Eczema of the breast should always be viewed with suspicion, for it may be a symptom of Paget's disease and precursory to cancer. In these cases the growth may for a long time appear as a superficial ulcer, and thus lead to errors in diagnosis.

International Journal of Surgery.

In cases of spina bifida in which the mass is small and the overlying skin not much atrophied, the protruding part may be reduced into the vertebral canal and prevented from returning by a disc of pasteboard, cork, or celluloid, held in position by adhesive plaster and bandage.

International Journal of Surgery.

Many cases of ophthalmia neonatorum are better treated with argyrol for the simple reason that it can do no harm; it acts as well as, and better than, most of the nonspecific remedies. Nitrate of silver may do harm unless it is applied by a skilled hand, but its proper application is required in a certain percentage of cases.—*Monthly Cyclopedia.*

In chronic mastitis the existence of pain and swelling of the glands in the axilla often awakens a suspicion of cancer. If the affected area is adherent to the skin and muscles, with puckering, the diagnosis may be impossible before a microscopic examination has been made.

International Journal of Surgery.

Vermont Medical Monthly.

A Journal of Review, Reform and Progress in the Medical Sciences.

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EDITORIAL.

The time has arrived in this country when there is no longer an urgent demand for medical men. The balance of supply and demand has been struck and effort in the future must be toward advance in requirements. What is needed now is not so much quantity as quality—not more but better doctors. In the past a man's medical education was largely acquired at the expense of the people among whom he practiced and a physician's proficiency was in direct ratio with the number of years which he had practiced his profession. Now it is demanded that the would-be physician must acquire all his training and a considerable amount of experience at his own expense before he can commence actual practice.

Instead of three years in some doctor's office he is required to spend four or five years of hard study in medical schools following several years of undergraduate academic study and then in most cases he must acquire experience in some hospital for another three years. When

he is finally allowed to practice his profession he must needs be a well trained man. The people he treats in these first few years are much better served than those treated by the young graduate of fifty years ago. After a practice of ten years the difference has largely disappeared. To both, if they are of the right sort, these years of practice were and are years of post-graduate opportunities. The way in which these are accepted makes all the difference between the good and the poor man.

The manner in which the plane of medical education is to be raised is a subject of vital importance today. Doctors like other classes of men are apt to be led by current opinion with little real thought for both sides of a question. Undoubtedly every medical man is in accord with the general proposition of the need of raising the requirements of medical education but we venture to say that few have thought that there is a real danger to a considerable class of our people in carrying these standards up. While the danger is not immediate careful perusal of our articles in this number will impress the thoughtful reader with the fact that this danger is none the less real.

The ordinary method of grading men on the result of written examinations is far from satisfactory and with improved courses of medical study this method should be reduced to a minimum and replaced as far as possible by a system based on a close watch of a man's daily work. All teachers have been met with the proposition of a student who is proficient in all practical work and apparently has a comprehensive grasp of the subject yet is utterly unable to put his thoughts in writing. This man may be much better qualified to practice medicine than some other student who can easily express all he knows on paper, yet the first one may very likely miserably fail in his final examinations while the other passes with honor. Of course this is somewhat a question of preliminary edu-

cation but not wholly by any means. There is far too much of the chance element in examinations, written or oral.

This evil of the examination system is particularly evident and especially difficult of solution in the system of state board requirements. That the four years work of a student must be staked in the replies to six or seven questions on a subject is obviously leaving much to the element of chance. It is easy to point out the faults in a system but usually much more difficult to suggest a practical remedy. From the latter task we beg to shy.

A medical education should have for its specific objects, first the preparation of a man to be a teacher among his clientele of the principles of hygienic living, i. e., the prevention of disease, and second, the fitting of the man to successfully treat the sick. We purposely put these two objects in the above order for we believe that the time has come when the physician, particularly the country practitioner, must be considered responsible in a certain measure for the cases of preventable disease which prevail in his community. If this is so, the medical college can have no more important function than instruction in the ways of preventing these diseases. The progressive medical school should appreciate this demand and be prepared to meet it. When medical courses have accomplished these results their responsibilities are ended. Any further training either preliminary or post-graduate which adds to the general culture of the man, is of great value to him in broadening his views, and probably in the long run in adding to his income, and certainly increasing his general usefulness in the community, but such training should not be ranked with the essential objects of medical education. While we firmly believe that the education necessary to an academic degree is extremely desirable and in most

cases worth to the individual physician the time and effort necessary to acquire it, we do not believe that the greatest good to the largest number is to be obtained by making these qualifications a requisite for entrance to a medical college.

BOOK REVIEWS.

A MANUAL OF PERSONAL HYGIENE:—Proper Living upon a Physiologic Basis. By Eminent Specialists. Edited by Walter L. Pyle, M. D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Third Revised Edition. 12mo of 451 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

An urgent need is met by this book, in furnishing a work which physicians may safely put into the hands of their patients without fear of inculcating false impressions. The subjects discussed are the hygiene of the digestive apparatus, the skin and its appendages, vocal and respiratory apparatus, ear, eye, brain and nervous system, physical exercise and domestic hygiene, together with an appendix in which are directions for simple nursing and first aid. There is also a glossary of medical terms necessarily used in the book. The subjects are treated in an interesting manner which makes an unusually valuable volume.

A MANUAL OF THE DIAGNOSIS AND TREATMENT OF THE DISEASES OF THE EYE. By Edward Jackson, M. D., Professor of Ophthalmology in the University of Colorado. Second Revised Edition. 12mo of 615 pages, with 182 text-illustrations and 2 colored plates. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$2.50 net.

"This book is intended to meet the needs of the general practitioner of medicine and the beginner in ophthalmology. It is designed to aid in the actual work of dealing with disease, and therefore gives the place of first importance to the recognition and management of the conditions likely to be presented early in practice, rather than to the rarer diseases and more difficult operations that may come later."

This quotation from the preface of the book shows its scope, and to those who desire a practical as well as concise treatise on diseases of the eye, the book may be highly recommended.

THE CARE OF THE BABY. By J. P. Crozer Griffith, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Fourth Revised Edition. 12mo of 455 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

A book for mothers and nurses written in a non-technical form, and therefore a good book for physicians who are so frequently called upon to explain in simple language many ultra-technical conditions. It is very complete for its size, and discusses many of the perplexing questions which are of every day occurrence and yet not usually included in works on pediatrics.

MANUAL OF CLINICAL CHEMISTRY. By A. E. Austin, A. B., M. D., Professor of Medical Chemistry and Toxicology in the Medical Department of Tufts College, Boston. Published by D. C. Heath & Co., Boston.

Heath's text-books are well known in schools of all kinds and Dr. Austin's book of physiological chemistry and analysis of urine is well in keeping with other productions of the firm. This is a small text book and laboratory manual, well suited for use of medical students and practitioners.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By Arthur R. Edwards, A. M., M. D., Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Northwestern University Medical School, Chicago. Illustrated with 101 engravings and 19 plates. Lea Brothers & Co., Philadelphia and New York, publishers.

While it is true to some extent that a book on practice has a certain field which all such aim to cover and beyond which few go, yet the individuality of the book is often a point of great merit. The present volume has as a distinguishing feature a special emphasis on differential diagnosis and treatment. The diagnosis is, wherever possible, shown by tabular arrangement, and copious prescriptions are given for treatment. The text is very satisfactory and one finds in reading this book that a practice may be given many touches of interest outside of the stereotyped phrases.

UNIVERSITY OF VERMONT ALUMNI.

The Medical Department of the University of Vermont, will appreciate it very much if any of the Alumni can furnish catalogues of the Medical Department of the following dates, to complete the files, 1857-66-7-8-9-71 and 73. These may be sent to the Dean.

CARCINOMA CUTIS.

This male patient, age 56 years, nativity Ireland, is suffering from a disease which is typical, yet if not properly studied may lead to making a wrong diagnosis. Over the right mastoid is situated an ulcer the edges of which are everted; the surface is sloughing and the tissues around the ulcer are infiltrated and hard. The patient stated that the ulcer has been increasing in size gradually, is painful at times, with a burning sensation radiating down the side of his neck into his ear. The lymphatic glands in the cervical and submaxillary regions are all hard and enlarged. The skin over the neck and face is covered with many little nodules and areas of carcinomatous tissue. Some of the lesions are large and dark in appearance, while others are smaller and appear to be in a stage of active inflammation. The ulcer over the mastoid first began as a papule, following a slight cut with the razor. Later a crust formed, which came away leaving a raw ulceration.

The ulceration in these cases is due to the increasing pressure of the new material upon the cutaneous vessels, the vascular supply being diminished or cut off from the affected parts and ulceration or gangrene resulting. Fresh nodules develop as a rule in other portions of the body, as seen on this patient's face and neck. The lymphatic glands become hard, nutrition being interfered with, the patient becoming more and more emaciated, and finally perishes from exhaustion.

From the history of the onset, the glandular involvement, and the many nodules on the surrounding portions of the skin, this case can readily and properly be diagnosticated carcinoma cutis. The only diseases with which carcinoma could be confounded are sarcoma, and lymphadenoma. Sarcoma, however, never attacks the lymphatic glands, while carcinoma even at an early date invades these structures. Lymphadenoma, on the other hand, involves the lymphatic system also, but it is a painless disease of long duration, and usually makes its appearance in the cervical glands. Carcinoma, on the contrary, is of comparatively short duration, is accompanied by more or less pain and by marked emaciation, and the cervical glands are not so much enlarged as in lymphadenoma.

The pathological condition of this form of carcinoma presented under the microscope is a dense network of connective tissue arranged in alveolar masses, the meshes of which are filled with many round epithelial cells.

The etiological factors of carcinoma are still involved in mystery. The most plausible theory of its production is that which supposes it to be due to a disturbance of the functions of the tro-

phic system. Probably it is a chemical change that takes place in the tissues.

The x-ray treatment is the best and probably the most available for this patient. I have seen excellent results from the application of the x-ray and it may not only heal the ulceration but, as it often has, cause the disappearance of the nodules entirely.

I am in hopes by keeping up the patient's general health with tonics and especially so by giving arsenic, that we may be able to retard the disease and hold it in subjection. The x-ray may, in the meanwhile, heal the ulcer which is now in an active stage of ulceration, and also compel the nodules to actually disappear. By this combined treatment we may be able to clear up the deposits upon and in the skin, and in this way prolong the life of the patient.

The prognosis, however, is always unfavorable; few recover from the disease; the majority of the patients die in the course of a few years.—*Shoemaker in Buffalo Med. Journal.*

LOCAL PROPHYLAXIS OF SYPHILIS.

In a communication to the French Academy of Medicine, Metchnikoff and Roux, of the Pasteur Institute, presented some interesting studies and experiments in the prophylaxis of syphilis. They first demonstrated on thirteen monkeys that a thorough application of a 39 per cent. calomel ointment upon the site of inoculation with syphilitic virus prevent the development of syphilis, even though made several hours after the inoculation. They then proceeded to make the experiment on man, a medical student, free of syphilitic taint, volunteering as a subject.

The inoculation was made in the preputial sulcus with virus from two hard chancres, one of which had existed eight days and the other one month. Five monkeys were inoculated eight minutes, massaged into the inoculation ointment the calomel ointment was, during with the same virus. One hour after the inwound of the student and one of the monkeys. The same thing was done twenty hours later to a second monkey, and the others were kept as controls. The initial lesion appeared in these control monkeys seventeen days later, and in the case of the monkey treated after twenty hours on the thirty-second day. On the other hand, no evidence appeared in the student nor in the monkey that had been similarly treated after three months' observation. It therefore

seems that in future it will be possible to use calomel ointment as a prophylactic against syphilis.

In the discussion, Hallopeau stated that he had taken up these observations with Neisser, who, after having repeated the experiments on monkeys, admitted their correctness. Hallopeau asked whether the use of such concentrated ointments did not give rise to manifestations of irritation. Metchnikoff replied that the present experiment on man was insufficient in some respects, but was of great interest, since it was in entire conformity with experimental results. The calomel ointment did not cause any irritation.

PHTHISIS: DRUG APPLICATIONS.

By W. C. Abbott, M. D., Chicago, Ill.

Many remedies have been suggested as germicide for the purpose of destroying the tubercle bacilli inhabiting the tissues.

Don't begin to use germicides until bacteriologic examination has rendered it certain that you have bacteria to deal with.

It is not certain that any germicide can be given to so saturate the human body that tubercle bacilli cannot live in it.

Creosote has been credited with the greatest success as a germicide. Gr. j, t.i.d., best in emulsion pushed to full tolerance.

In our most successful case of creosote saturation the patient smelt like a ham and the skin looked like one.

The iodide of gold was suggested by Shurly and Gibbes—gr. 1-67 four times a day, pushed to just below salivation and sustained at that point.

The recommendation of calomel as a specific for phthisis testifies to its value as a purgative intestinal antiseptic.

Helenin constantly reappears. It is antiseptic, combats diarrhea and bronchitis, acts slowly. Give gr. 1-2 daily for months.

Iodine has been advised in many forms as a germicide, the best being calx iodata, and iodoform, the latter soothing cough.

Copper phosphate has been suggested, but the arsenite or sulphocarbonate better represents its great value as an antiseptic.

Potassium cantharidate is a suggestion of Liebreich's, the *rationale* obscure, but it relieves the cough of the first period.

Gold and potassium cyanide was once suggested. The cyanides soothe cough beautifully. The best is zinc cyanide, gr. 1-6 as needed.

While guaiacol in many forms has been widely employed, it has not supplanted creosote in public estimation.

Mercury thymolacetate has been advised hypodermatically in doses of gr. 1-6, but its value has been neither proved nor disproved.

Mercury cyanide and methylene blue are two more suggestions that have never received decisive trials.

Since Stern's studies of formic acid have been published, iodium formate might be given a more conclusive trial.

The most striking improvement follows when the bowels are emptied and disinfected even when not themselves tubercular. Sulphocarbolates best.

To empty the bowels give calomel gr. 1-6 every half hour for six doses, followed by saline laxative, with a clean up of the sulphocarbolates.

A small morning dose of saline laxative suffices to prevent the bowels again being clogged by retained matters.

To disinfect the bowels give 40 grs. of calcium sulphocarbolate every day as long as the stools are offensive.

When the bowels have been regulated and disinfected 20 grs. of calcium sulphocarbolate daily keeps them in order.

The fever invariably subsides when the bowels have been emptied and properly disinfected.

The best fever-combination consists of aconitine gr. 1-134; digitalin, gr. 1-67, and strychnine arsenate, gr. 1-134.

The dosimetric triad above described may be given as often as necessary to restrain fever and sustain the circulation.

For free fetid sputa give myrtol, thymol, menthol or eucalyptol, enough to correct and restrain the discharge.

Morphine should never be used until the time comes, if it ever does, when, hopeless, we consider euthanasia a duty.

Creosote checks free secretion, fetor, sweating, anorexia, dyspepsia, cough, fever and gastrointestinal disorder generally.

In caseous degenerations to clear away waste we may give apocynin, gr. 1-12 three to ten times a day.

Dyspnea if spasmodic, is relieved by glonoin, gr. 1-250 every few minutes until effect.

A slower but more enduring remedy for dyspnea is aspidospermine, gr. 1-67 to 1-12 four times a day.

If compelled to use opiates for cough, the most effective and least harmful is codeine, gr. 1-12, dissolved on the tongue like a lozenge.

Calcium lactophosphate increases tissue resistance to disease, and corrects fragility of the cell wall which allows hemorrhage.

Calcium lactophosphate checks all colliquative discharges from the skin, the bowels or the bronchi.

Macrotin palliates cough, improves the appetite and cures bronchitis, perhaps best in non-tubercular cases.

Arsenic always causing fatty degeneration, should not be employed in fatty enlargements of the liver.

Arsenic is best for chronic forms, not caseous, with little fever. In early stages it relieves gastrointestinal irritations.

Arsenic iodide is the most active form of iodine known, useful when there is much debris to be carried away.

Quinine arsenate is especially useful when fever assumes periodicity. Give one-sixth to one grain daily in divided doses.

The dose of arsenic iodide for an adult is gr. 1-67 four times a day on an empty stomach; rarely to be exceeded.

The constantly increasing debility renders strychnine arsenate more applicable. Give gr. 1-134 to 1-30, as often as needed.

Barium chloride has been recommended in cheesy forms, to sustain the heart, and stimulate lymphatic absorption.

Sanguinarine is the best stimulant when dull mucous sensation permits secretions to accumulate; gr. 1-67 three to ten times a day.

Corrosive sublimate, gr. 1-134, every one to four hours, sometimes proves remarkably useful for fermentive diarrheas.

Emetine is the best and safest remedy to increase mucous secretion and relax hyperemic mucosa in delibitated patients.

Lobelin, gr. 1-12 in solution, every hour, replaces emetine in younger, stronger and more lymphatic cases.

Emetine in full nauseant doses flushes the liver and is one of the best remedies to prevent or stop pulmonary hemorrhages.

When emetine or lobelin has loosened expect-

toration, cubebin sustains the action nicely. Give strictly to dose enough.

Cactin is about our best heart-tonic in this malady, and also has a useful effect in restraining hemoptysis.

Before employing opiate for cough or insomnia try ext. cannabis, gr. 1-6 every hour, till evident effect is produced.

Constipation and biliousness are nicely relieved by a grain or two of euonymin at bedtime with a trace of bilein to insure action.

Hectic sweats and debility are checked by quinine hydroferrocyanide, gr. 1-6 every 1, 2 or 3 hours by day.

For the diarrhea many excellent practitioners praise myricin in doses up to 3 grains, a stimulant astrigent.

In the scrofulous type the iodide of iron acts through both elements, increasing elimination and relieving anemia. Give one grain a day.

Colliquative discharges are checked by the oxides of silver and zinc, or copper sulphate, but best by the sulphocarbolates.

Cotoin has been pronounced a specific for tubercular diarrheas; gr. 1-6 three times a day and upwards.

Lycopin for early hemoptysis, cough, sweats, diarrhea and anorexia; one grain every 2 hours and upwards.

Irritative cough is best relieved by zinc cyanide, gr. 1-6 frequently repeated, and by restraint through will.

Benzoic acid is useful for free and offensive sputa, gr. 1-6 every hour till the desired effect is obtained.

Calx iodata quickly and powerfully stimulates the absorbents, strengthens weak cell-walls, and prevents hemorrhage.

Chimaphilin has been credited with checking the advance of the disease; gr. 1 three times a day, pushed to toleration.

Fraserin checks night-sweats and relaxation diarrhea, besides being an elegant tonic for these fastidious stomachs.

Hydrastine checks capillary hemorrhages and the sweating and dropsy that are due to relaxation.

Picrotoxin has proved beneficial in laryngeal disease; checks night-sweats and opens up elimination; gr. 1-134 three times a day.

The great remedy for pulmonary hemorrhages is atropine, in full dose, hypodermically, enough to flush the skin.

Atropine powerfully checks sweating temporarily, but small doses of picrotoxin do better in most cases.

An impending hemorrhage may be prevented by giving emetine, gr. 1-6 every half hour until vascular relaxation.

Obviously in this disease of rapid wasting, the use of eliminants must be carefully controlled.

The greatest surprise comes when we note the improvement when the bowels are flushed and disinfected.

About 40% of the symptoms are due to toxic absorption from the non-tuberculous alimentary canal.

There is emphatically no treatment for pulmonary consumption; but an infinity of benefit to be had from the indicated remedies.

Despite these numerous suggestions very little medicine is needed if it be properly applied.

There is no disease in the treatment of which so many different remedies are sometimes found to be applicable.

Whatever hygienic treatment is employed it is infinitely improved by the judicious application of drugs.

The physician who would treat phthisis without combining hygiene and drugs is simply a fool.

The opportunities for intelligent and effective intervention with drugs are simply innumerable.

No drug should ever be given without considering both the general and the local conditions.

Climate alone can never give as good results as hygiene and medicine properly applied at the patient's home anywhere.

My experience has convinced me that the oval or half egg shaped pad with which every style of hernial truss is made, is a great mistake, and has been the cause of much injury and irritation to many who have been compelled to wear them. An egg shaped pad is a wedge, and acts as such. When placed upon the abdominal ring, it constantly and surely enlarges it. When quite large it is sometimes difficult to keep the gut within the abdominal walls.

If a flat pad is applied when the hernia is small it will prevent any further dilatation of the ring.—Adrian T. Woodward, Brandon, Vt.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

PEDIATRICS.

DERMATOLOGY.

EFFECT OF PILOCARPINE.

JOHN J. REID (*Medical Record*, May 25, 1907) calls attention to the specific effect of pilocarpine in the different forms of prurities and especially in pruritus vulvae. He regards pruritus as a neurosis allied to neuralgia, and has this in common with neuralgia that it is periodic and may occur without any immediate cause. The dose of pilocarpine recommended is $\frac{1}{4}$ of a grain and is *not* to be repeated until the itching returns.

TREATMENT OF ECZEMA.

It is now admitted that eczema is not caused by a parasitic organism, writes Henry Waldo, of Clifton, Bristol, Eng. It follows, therefore, that anti-germicidal applications are not called for, and indeed have often made a pure and simple eczema much worse by irritating it. Care must be taken to exclude seborrhoeic dermatitis which is only benefited by certain antiseptic remedies.

No doubt various food toxins and the products of imperfect metabolism and malassimilation by circulating in the blood can produce erythemata as well as other conditions of the skin, and if they cannot often produce an eczema, they may aggravate it and possibly produce it in a predisposed subject. To counteract this tendency, diet the patient, and prescribe correctives, of which salicin is one of the best in these cases. Water taken between meals is also helpful. All that is required locally are quieting and protective applications. If for any reason sodium chloride is retained beyond the normal quantity, the excess entails the retention of an additional quantity of water to hold it in solution. The surplus salt and water under certain circulatory conditions passes out of the blood into the tissues, and in this way eczema may be kept up, so that it may be necessary to lessen or cut off the common salt the patient is accustomed to take with food.

Eczema depending chiefly on a neurotic tendency, and usually occurring in people who are broken down in general health, is difficult to manage, and is not much benefited by ordinary treatment, unless a change into the country is insisted on. If this is not practicable, perhaps cod-liver oil does as much good as any internal remedy. Inquiry as to the amount of sleep the patient gets is also important, as there is no better restorative for nervous conditions. Cleanliness of the eczematous surface should be carried out with a weak alcohol, as diluted methylated spirits; or, if the eczema is very acute, with weak warm gruel instead of soap and water.

Where much thickening has occurred, and especially if fissures have formed, eczema rimosum, nothing does so well as local dressings of some reducing agent as salicylic acid in various strengths. In severe cases of eczema, and when an extensive surface is involved, the good effect of rest should be remembered, and the patient confined to bed. If the surface of an eczema does not show much redness, a weak preparation of spirit and tar painted on once or twice in the twenty-four hours, in addition to the ordinary application, at once relieves the itching and cures the eczema if the case selected is found to tolerate this interference.—*British Med. Jour.*, March 2, 1907.

CANE SUGAR IN MODIFIED MILK.

Cow's milk keeps its casein in solution by its normal percentage of calcium phosphate; this is decomposed by the lactic acid of stale milk, or when milk sugar is added and is changed into lactic acid the casein is no longer in solution, but is thrown out and coagulated. Now cow's milk has three or four times as much casein as woman's milk and only half as much milk sugar; this small quantity of milk sugar allows the big mass of casein to be kept in solution; if you add the milk-sugar (or its lactic acid) of our chemical infant feeders, the casein is no longer kept in solution, and is thrown out. One of the great dangers of infant feeding is the insoluble or curdled casein. The proper quantity of milk sugar—the hobby horse of our professional dietitians—to go with a cow's milk mixture ought to be enough, and no more, to keep cow's milk and casein in solution, but not the large percentage of milk sugar contained in woman's milk which will prove excessive in its relation to cow's milk casein. It is only woman's casein that, though in a percentage three times smaller than that which is contained in cow's milk, is not thrown out by its larger quantity of (milk sugar born) lactic acid.

All of this proves again that the casein of the cow's milk and that of woman's milk are chemically different, and that the practice of adding the weight of milk-sugar required to keep woman's casein in solution is in excess of that which is tolerated by that of the cow.

What I conclude from all this is that every cow's milk mixture contains a sufficient amount of milk sugar for the needs of digestion, and that some other sugar should be added, viz., cane-sugar—which in its chemical atoms is identical with milk sugar but is not changed into lactic acid. Indeed it counteracts the rapid conversion of milk sugar into lactic acid, and is rather a preserver of milk in its purity. You know that cane sugar is employed by the trades for the purpose of preserving foods; amongst them is condensed milk, which though reprehensible as a food when pure cow's milk can be obtained, is an indispensable makeshift in the service of the hundreds of thousands of our large cities to whom pure milk is a terra incognita. I do not speak, I never spoke in its favor; but I recognize that unclean milk, fermented milk, poisoned milk, is vastly inferior to good condensed milk; and I conclude that what I and you, and all the rest, are bound to do is to facilitate the production and distribution of real, genuine, unpolluted cow's milk. The Baltimore movement in this direction will prove a great benefaction to rich and poor, to old and young.

Cane sugar is not changed to an acid in the intestinal canal. It is easily absorbed and is not detrimental. It is, according to Pavy, partly inverted into grape sugar and partly absorbed directly. Grape sugar and dextrine are absorbed equally. Only in the sick the absorption of sugar is slow; particularly in the diseases of the alimentary canal, in which there is increased fermentation in the mouth, stomach, and intestines, the ingested quantity of sugar should be diminished and diluted. The purgative effect of cane sugar—if at all appreciable—is much milder than that of milk sugar. After all, I again urge the use of cane sugar, and not of milk sugar, in the preparation of cow's milk mixtures in infant feeding. For the same reasons a great pediatricist, Philippe Biedert, employs cane sugar in his cream mixture which under the name of Ra-

mogen has been introduced lately into the American market.—A. Jacobi in *New York State Journal of Medicine*.

SURGERY.

TRANSMISSIBILITY AND CURABILITY OF CANCER.

DR. WILLIAM SEAMAN BAINBRIDGE of New York City (*Boston Medical and Surgical Journal*, June 29, 1907) calls attention to the growing fear of cancer on the part of people of all classes. He attributes this to the theories of heredity, congenital transmission, and infectiousness or contagiousness as casual factors in the production of the disease. The fear of the contagiousness of cancer has been aroused by the exploitation of the subject in the public press. After reviewing the evidence *pro* and *con* of these theories he calls attention to the following points, adduced from the mass of conflicting evidence, which, pending the solution of the "cancer problem," will lead no one into danger: (1) That the hereditary and congenital acquirement of cancer are subjects which require much more study before any definite conclusions can be formulated concerning them. (2) That in the light of our present knowledge they hold no special element of alarm. (3) That the contagiousness or infectiousness of cancer is far from proved. (4) That evidence to support the theory of contagion or infection is so incomplete and inconclusive that the public need not concern itself with it. (5) That the public need merely be instructed to apply the same precautionary measures as should be brought to bear in the care of any ulcer or open wound. (6) That the danger of the accidental acquirement of cancer is far less than from typhoid fever, syphilis or tuberculosis. (7) That in the care of cancer cases there is much more danger to the attendant or septic infection, of blood poisoning from pus organisms, than from any possible acquirement of cancer. (8) That the communication of cancer from man to man is so rare, if it really occurs at all, that it can practically be disregarded. (9) That in cancer, as in all other disease, attention to diet, exercise, and proper hygienic surroundings, is of the utmost importance. (10) That cancer is local in its beginning. (11) That, when accessible, it may, in its incipency, be removed by radical operation so perfectly that the chances are overwhelmingly in favor of its non-recurrence. (12) That once it has advanced beyond the stage of cure, in many cases, suffering may be palliated and life prolonged by surgical means. (13) That while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest means of cure.

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II. The patient has a tendency to press upon the abdomen at this point with his hand or to lean against a table occasionally.

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The author reaches the following conclusions:

1. By timely operation for the various causes of persistent indigestion, many patients will be saved from developing gastric carcinoma.

2. Early diagnosis of gastric carcinoma being so extremely difficult, and radical removal being only highly promising when an early diagnosis has been made, partial gastrectomy should be an operation limited to cases of malignant disease operated on for symptoms of pyloric obstruction or other gastric affection supposedly benign, in which the existence of cancer, though perhaps suspected, cannot be certainly diagnosed before operation.

3. In cases of gastric carcinoma moderately advanced gastroenterostomy should be preferred to partial gastrectomy.

4. When the indication is to prevent starvation, jejunostomy should be performed.

GYNECOLOGY.

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In animals fed on albuminoid diet there is found a relatively constant departure from the normal. The type of change is common to all abnormal diets; its severity varies.

The severity of the changes induced are found to be in proportion to the ages of the animal at the time when the abnormal diet was begun. The changes are most marked in the animal put on the diet at weaning; they are less marked the more mature the animal at the time of the commencement of the abnormal diet. In a fully developed animal, any abnormal diet may fail to materially change either the size or structure of the uterus. The writer calls attention to the fact that a meat diet if begun at weaning almost invariably led to sterility and considers that this is due to structural developmental abnormalities in the uterus induced by the abnormal diet. He shows that the consumption of meat in England is seventeen times as great as it was in 1850. During the same period the fall in the birth rate has been most marked.

When to these facts is added the further fact that the decreased birth rate is among the better classes where means prevent of an unrestricted use of the expensive meats, the author thinks that the food factor in its relation to the birth rate is one worthy of serious consideration.

OBSTETRICS.

SUCCESSFUL FLANK MOVEMENT AGAINST THE CRIMINAL ABORTIONIST.

The ever-widening campaign against the crime of abortion receives most welcome aid in the form of a drastic and far-reaching opinion of the New York Supreme Court, Appellate Division, in which is approved the conviction of one Elise Hoffman, known to the public chiefly through her advertisement in the daily press of New York City reading "*Irregularities or no charge; longest cases; ladies boarded; 213 East 78th St.*" What lends to this case its exceptional interest, and to the conviction its far-reaching influence, is the circumstance that the abortionist in question was successfully attacked in a novel way. For the defendant was attacked on the ground that she was maintaining a nuisance, in that she received into the house named in the advertisement pregnant women and used instruments upon them to procure unlawful abortion. The trial resulted in a conviction, with sentence of one year in the penitentiary and a fine of \$500. Upon appeal, this sentence was approved on such broad lines, and in such clear and unequivocal language, that in the future those charged with the duty of running down this class of criminals will be relieved from the necessity of laying elaborate traps to catch a suspected offender in the act of committing an abortion. As the case in question is the first of its kind to find record in the books of either England or America, the able opinion of Justice Lambert, which embodies also a history of the case, is given in full, hereunder.

LAMBERT, J.: The defendant was charged with maintaining a public nuisance under the provision of Sec. 385 and 387 of the Penal Code. An examination of the record shows that there was a fair trial, and that the judgment of conviction rests upon sufficient and competent evidence of the facts set forth in the information. The appellant insists that no crime under Sec. 385 of the Penal Code was stated in the information, and that, therefore, the motions on the opening and closing of the case and in arrest of judgment should have been granted. This seems to be the only question requiring consideration.

The section of the Code concerned, so far as it is involved on this appeal, defines a public nuisance to be "A crime against the order and economy of the state, and consists in unlawfully doing an act, or omitting to perform a duty, which act or omission: (1) Annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons; or (2) offends public decency." The facts set forth in the information and supported by the evidence, show that the defendant advertised in the public newspapers of the City of New York to the effect that she cured "Irregularities, or no charge; longest cases; ladies boarded; 213 East 78th Street"; that she received into the house above indicated a large number of women who were with child, and that she used instruments in producing abortions. There is no attempt to dispute that the defendant made admissions of this character to the witnesses called by the people, but it is urged on the part of the defendant, that as Sec. 294 of the Penal Code makes abortion a crime of a higher character, there was no jurisdiction in the trial court of the offense charged as a public nuisance. Great reliance is placed upon the fact in support of this contention, that no adjudicated case has been found in which it has been held that the maintaining of a house for the purpose of practising the vocation of an abortionist, constitutes a nuisance. It is true, as a general proposition, that if a house is so kept that no one outside of its inmates is disturbed, annoyed or corrupted in their morals, it is not in law a disorderly house. The annoyance or corrupting influence must reach beyond the inmates and affect the public peace or morals of the community (1 Bishop on Criminal Law, Sec. 1051); but the same author says that this doctrine should "not be so applied as to exempt any man from indictment, whose house is practically set open to the public, alluring the young and unwary into it for the purpose of their indulging in anything corrupting to their virtue, sobriety or general good morals. If a man would shield himself from indictment when he allows wicked and corrupting practices within his house he should keep his doors, while those practices are carried on closed to the outer world" (Sec. 1053). Again, this same learned author says: "If a house is of common resort for the commission of petty offences against the laws, such as offences punishable by fine, it is indictable on this ground, though not otherwise disorderly" (Sec. 1053). In the following section, he declares that this principle is as old as the law itself; that "A man who holds out inducements for people to congregate, and together commit violations of a statute, not only lends the concurrence of his will to their wrongful acts, but also does what most powerfully tends to disrobe the body politic of her virtue, and of the drapery of that order which the hand of government has thrown around her." In Sec. 1057, he continues: "To bring a case within this principle, the particular acts must be either indictable, or, in some sense, unlawful. Therefore the English Court quashed an indictment which charged one with converting a house into a hospital for taking in and delivering lewd, idle and disorderly unmarried women, 'who, after their delivery, went away, and deserted their children, whereby the children became chargeable to the parish.' 'By what law,' asked Lord Mansfield, 'is it criminal to deliver a woman when she is with child?'" In this there is a clear intimation that the indictment would have been good, had it charged that the house was used for the crime of abortion, rather than the lawful delivery of children.

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Construing the provisions of the Penal Code under which this charge is made, in the light of the common law, it is only a just construction to hold that the

broad language used, embraces the offenses of the common law rule.

As before seen, the section defines a nuisance to consist in unlawfully doing an act which annoys, injures, endangers the comfort, repose, health or safety of any considerable number of persons, or offends public decency. This surely is as broad and inclusive in terms as the rule of the common law, which has been made the subject of the Code provisions. At common law, it would have been, and under the Code provisions, it is a nuisance for a person, by public advertisement, to invite and receive a class of the public to his premises for the purposes of violating the laws of the State, as was done in this case. This, in our opinion, constitutes "crime against the order and economy of the state" by offending "public decency." It is the duty, therefore, of this court, in accord with law, to sustain this conviction. The offense of abortion is one thing; that of maintaining premises open to the public for the purpose of consummating that crime, is another and separate offense against the peace and good order of the state. It is an inducement to moral laxity and to crime, and is within the letter and spirit of the sections of the Penal Code here under consideration.

No errors prejudicial to the defendant appearing in the record, the judgment of convictions is affirmed. —*Medical Notes and Queries, May, 1907.*

INFLUENCE OF THE MOTHER'S HEALTH ON THE FETUS.

J. W. BALLANTYNE, Edinburgh, Scotland (*Journal A. M. A.*, April 27), holds that any diseased condition of the mother during pregnancy, whether due to microbes, toxins, toxic agencies or diathesis, has its danger for the unborn child, and the fact that it so often escapes must be explained by the protective influence of the placenta. The morbid influence may either force its way through the placenta and cause disease of the fetus, or it may cause its death by destroying the integrity of the placenta itself. The laws governing the placental interchanges, however, have not been discovered. The great safeguard of the fetus in case the mother is diseased, is a healthy placenta, which prevents the passage of germs and toxins and is not itself affected by them. We do not know yet whether there are medicines that act as placental tonics as it were; possibly potassium chlorate and mercury, or some of the organic extracts may be found to have this action. The placenta is a very vital organ of the fetus and this is probably one of the chief reasons why such disorders as maternal syphilis, which causes marked lesions in the placenta, has so disastrous effects on antenatal life.

DIAGNOSIS.

LEUCOCYTE COUNT IN DIAGNOSIS.

SONDERN (*The American Journal of Medical Sciences*) writing on the "Value of the Differential Leucocyte Count in Diagnosis" gives a resume of the work done by recent observers upon this subject. In his paper read before the surgical section of the New York Academy of Medicine Sondern came to the following conclusions: The increase in the relative number of polynuclear cells is an indication of the severity of the toxic absorption, and the degree of leucocytosis is an evidence of the body resistance toward the infection. Within reasonable limits the figures obtain would justify an inference as to the probable presence or absence of pus, purulent

exudates being rarely present with low polynuclear percentages irrespective of the height of the leucocyte count. Gibson (*Annals of Surgery*, April, 1906), investigating the blood in 200 cases at St. Luke's Hospital, New York, came to the following conclusions: The differential blood-count and its relation to leucocytosis is the most valuable diagnostic and prognostic aid in acute surgical diseases furnished by any of the methods of blood examination. It indicates fairly consistently the existence of suppuration or gangrene, as evidenced by an increase of the polynuclear cells disproportionately high as compared with the total leucocytosis. H. C. Taylor, in a study of several hundred gynecological cases at Roosevelt Hospital, comes to the same conclusions. In reviewing J. F. McKernon's observations in 200 hospital and private cases, Sondern mentions that in McKernon's investigation it was shown that suppurative bone processes do not give as distinctive findings as other suppurative conditions. The author himself also states that in children the results are not as uniform as in adults. As a reason for this exception to the rule in some children he states that the normal polynuclear percentage in children is a more variable quantity than in adults, and that a fall in the polynuclear percentage may be due to a lack of ability to absorb additional toxic material. Sondern further admits that when pus is so confined that no toxic absorption occurs or when a purulent exudate is the result of tuberculous or typhoid infection alone there is no leucocytosis and no polynuclear increase. Mixed infection with tubercle bacilli or typhoid bacilli does not show the high polynuclear percentages obtained in staphylococcal or streptococcal infection. It really looks from these admissions of Sondern as if this new method of more surely detecting the presence of a purulent infection may stumble and fall over the same obstacles which caused the leucocyte count in clinical diagnosis to be discarded by those clinicians who looked for some specific diagnostic sign of pus and failing to find it in this procedure gave up its use entirely. Probably in this newer procedure, as in that of the leucocyte count, more extended observations will reveal exceptions which must be borne in mind when employing it as a diagnostic aid. While having but a very limited experience with this study of the polynuclear percentages the writer has made a large number of leucocyte counts in a great variety of diseases, and is of the opinion that many of the so-called exceptions to the well-known rules are due either to faulty technic or to blood examinations made so late in the course of the disease that the distinctive leucocyte picture had been obliterated. The fact, too, that to differentiate leucocyte count is a procedure requiring considerable time, while making a leucocyte count requires only a few minutes, will tend to make the latter method more generally employed as an initial clinical test to be followed later on by the differential count in the still doubtful cases.

THE DIGESTIVE BEAD TEST.

M. EINHORN, New York City, (*Journal A. M. A.*, February 2), again describes his new method, originated at the beginning of 1906, of giving the patient, in a gelatinous capsule, beads with various food substances attached and examining the stools, at longer and shorter intervals, to ascertain whether or not the substances have been digested. He usually employs the following six substances: Catgut, fish bone, meat, potato, mutton fat, thymus gland. The

first two are usually digested in the stomach, the others in the intestines. With regard to the functions of the digestive apparatus, the following conclusions are drawn: If all or most of the beads reappear before 24 hours there is an accelerated motility; if, after 48 hours, a retarded motility exists, if only traces of fat and thymus or fish bone remain, the digestion is good; the reappearance of meat and potato, much fat or thymus, indicates poor digestion, and if all the substances appear, the digestive function is absolutely bad. He has recently used this test in a number of cases, in various conditions of health or disease, and discusses the tabulated results. These tables, he says, show that the test gives a thorough insight into the relations of the functions of the digestive apparatus. More study, however, will be required before they can be used diagnostically. Einhorn has previously shown that catgut is occasionally digested in the intestines, and these later experiments seem to show that fishbone may also be thus digested in rare instances. He therefore instituted experiments by suspending pieces of catgut and fish bone by a silk thread in the stomach, and withdrawing it after certain periods. This experiment seemed to show that excessive acidity of the gastric juice retards the disappearance of the catgut, and other experiments showed that catgut is occasionally digested in the intestine, and that trypsin has occasionally a digestive action on fish bone. He is also experimenting, to ascertain the value of the method of determining the presence or absence of HCl. He gives detailed directions for preparing the food beads, and remarks that while the test is of value, when a more thorough knowledge of the functions of the digestive apparatus is desired, it is not permissible with pronounced stenosis of the digestive tract, or with stricture of the esophagus, stomach and intestine.

MEDICINE.

THE CHEMISTRY OF THE SILVER COMPOUNDS.

W. A. PUCKNER, Chicago, (*Journal A. M. A.*, October 20), describes the proportional chemical properties and composition of the organic silver compounds which are recommended for medicinal use. Silver compounds are classified as simple, complex and colloidal. The silver in the second class of preparations being contained in complex radicals or ions, will be less promptly affected by the chlorids and albumins of the body tissues and, therefore, will have a more gradual and consequently a more penetrating action. The chemical nature of the colloidal silver preparations is still somewhat in question, but it is generally held that insoluble silver or silver salts are present, but are prevented or retarded in their separation in some way, perhaps by such bodies as albumin, gelatin, etc. The different preparations are treated of alphabetically, their trade synonyms being given as well as their proper chemical designations under which their reactions, etc., are described.

Immediately upon the application of the silver nitrate solution, a bluish-white pellicle forms on the conjunctiva, due to a coagulation of the albumin of the cells in the upper layers of epithelium—these layers become opaque and die. This process causes a hyperemia and induces a transudation under the eschar, so that the latter separates and is thrown off—the micro-organisms contained in the superficial layers of the epithelium are also cast off and washed from the eye. Now we know that while argyrol does not have this action, it has a deeper penetrating power than silver, so when a solution of

argyrol is instilled into an eye in which the eschar has been cast off, it has a better chance to penetrate deep down into the tissues, the coat of mail, as it were, being cast off.

THE THIRST CURE.

J. W. SCOTT (*Texas State Journal of Medicine*) says on the subject of thirst cure: According to the experiments of Von Mering, water when taken into the stomach is not absorbed to any extent, but remains in that viscus as a dead weight until forced on into the duodenum. From the intestine it is absorbed into the circulation, where it temporarily increases the blood pressure. Through the blood-vessels it passes on to the emunctories, by which it is finally eliminated from the body. Upon these physiological facts are founded the therapeutical indications for water restriction.

In advanced stages of gastric dilatation there is marked motor insufficiency, and the prime indication in the treatment is to tax the weakened organ as little as possible. The food should be concentrated and of such character as to be easily absorbed by the stomach, or easily forced on into the intestine. Water, therefore, should be restricted because it adds greatly to the volume and but little to the nutritive value of the food. It, furthermore, is not absorbed by the walls of the stomach and is propelled into the duodenum with considerable difficulty when the greater curvature occupies a lower place than the pylorus, which is the case in gastrectasia. A dry diet, consequently, is to be recommended where the stomach is dilated and its musculature has lost its tone. Such a diet spares the disabled organ and tends to restore its functional activity.

The quantity of water ingested should also be reduced in the treatment of arterio-sclerosis. Many cases of this disease are directly traceable to increased arterial tension produced by excessive ingestion of liquids. The over-distension of the blood-vessels causes the vasa vesorum to become compressed between the inner and fibrous coats, the latter being fixed, having reached the point of fixation from distention. In this way, according to Brunton, the walls of the vessels are deprived of the proper amount of nourishment, and so undergo degenerative changes. If immoderate drinking of water predisposes to arterial sclerosis, water restriction should be an essential factor, both in the prevention and treatment of that condition.

Aneurism is another disease of the arteries in which a dry diet should be used. This mode of treatment is contraindicated, because while it might hopeless cases and is founded upon good reasoning. The principal points in treating an aneurism, are to lessen the force of the heart's pulsation, to lessen the arterial tension and to increase the coagulability of the blood. All three of these indications are met in great measure by the restriction of liquids.

Internal hemorrhage is another pathological condition benefited by lessening the quantity of water ingested.

In intestinal hemorrhage from typhoid fever this will often check the bleeding when all other measures have failed. Frequently, it is recommended to give normal salt solution in such cases to overcome the cardiac depression; but I believe such treatment is contraindicated, because while it might stimulate and strengthen the action of the heart, it is directly conducive to further bleeding. The restriction of liquids is particularly beneficial in the treatment of gastric, intestinal and renal hemorrhage, for, in addition to reducing arterial tension

and increasing the molecular concentration of the blood, it lessens the functional activity of the involved organs and promotes their rest.

One of the most important therapeutic indications for the reduction of the water intake is in the treatment of valvular lesions of the heart, both the compensated and uncompensated variety, being a prophylactic measure in the former and a remedial agent in the latter.

This is explained by the fact that all water introduced into the stomach must pass several times through the heart and blood-vessels before it is eliminated from the system by the emunctories. The contractions of the heart furnish the force necessary to carry on this circulation. So it is self-evident that if you lessen the quantity of water ingested, you lessen the work to be done by the heart. Now the principal point in the treatment of all cardiac lesions is to spare the weakened organ as much as possible. With this object in view, you instruct such patients to avoid violent muscular exercise, and for the same reason you should also have them to lessen the amount of liquids taken. This is especially necessary when the water equilibrium of the body becomes disturbed; when the patient excretes less than he drinks and as a result begins to gain in weight.

In acute nephritis where water is eliminated with great difficulty by the acutely inflamed kidney the author thinks water should be restricted to spare the organ. When the inflammation begins to subside and elimination more free, more water can be given.

The condition of the cardio-vascular system in chronic interstitial nephritis demands that the quantity of water be limited.

RENAL CALCULUS.

HOROWITZ (*Post-Graduate*, July, 1907), writing on Renal Calculus, its etiology and treatment, reaches the following conclusions:

1. Renal calculus is the result of faulty metabolism.
2. The uric acid type of calculus is the most common form.
3. The action of calculi in the genito-urinary tract is purely mechanical.
4. Small loose stones in the pelvis and ureter cause the most symptoms.
5. There are cases of a single large stone occupying the pelvis and the calices of the kidney without any symptoms.
6. The most important symptoms are, 1st, pain, colicky in nature, starting in the region of the kidney or in the loin, and radiate down the ureter to the bladder and thigh, and to the penis and testicle in the male, and to the labia in the female; 2nd, hemorrhage, beginning with the passage of the stone into the bladder; it may be slight or excessive; 3rd, frequency of micturition, or 4th, occasionally calculus anuria.
7. The diagnosis is often uncertain unless the stone can be palpated, or is shown to be present with the X-Rays.
8. Indican is an index to the condition of the digestion, therefore pointing out the possibility of an existing sub-oxidation, and therefore the possibility of this condition being present also.

9. The Paquelin cautery is a valuable aid for relieving the congestion of the kidney, and thus aid in bringing up an existing anuria.

10. Carbolic acid stops the pain of renal calculus very quickly and prevents recurrence by changing the over-produced uric acid into a urate of soda.

11. Attention to diet is of great importance in the treatment of renal calculus. Fruit must be excluded.

GONORRHEAL CONJUNCTIVITIS.

HART (*California State Journal*, July), gives the treatment of gonorrheal conjunctivitis as follows:

In the period of infiltration, where the lids are swollen with edema, an immediate canthotomy should be performed. By this means, the lids can be everted and properly irrigated—the blood vessels are relieved and removes the pressure on the eye. The danger of abrading the cornea is greatly lessened as the lids can easily be everted. If this cannot be readily done, the cornea is continually threatened by the manipulation of careless attendants. An abrasion of the cornea-epithelium means an entrance point for the infecting bacteria with its train of direful results. The pain and swelling of this stage can be greatly relieved by the use of iced cloths.

In the stage of purulent secretion, cleansing is by far the important factor to be observed. The cold applications are stopped and the aim of the surgeon is to keep the secretion from accumulating in the conjunctival sac by gentle irrigations, with any mild antiseptic solution, every fifteen or thirty minutes, day and night, as the case demands. This is done by gently everting the lids and irrigating by means of a Davidson rubber ear douche bulb. The stream should not be directed against the cornea, as this may cause an abrasion of the epithelium. The kind of antiseptic solution used is of small moment, as long as it is mild—in this hospital, a saturated solution of boric acid is employed.

After this cleansing, a 2 per cent. solution of silver nitrate should be applied once daily in the morning and a 25 per cent. argyrol solution instilled every hour night and day. This combined treatment is much more effective than either of the silver preparations separately.

THE MODEL PHYSICIAN should be the cleanest man in the community, physically and morally. His home life should be above reproach, representative of his profession. He should be well and an example in his clientele. As a representative of his profession, he should be well and neatly dressed. His income should be commensurate with the preparation involved and the sacrifices he must make if he is true to the traditions of his calling. So declares Dr. McCormack, of Johnston, Pennsylvania. All of these qualifications, and many more, the physician might command—except the last, in regard to which the fates much too often frustrate his hardest and most conscientious efforts.—*Med. Times*.

HAY FEVER

Adrenalin, the active principle of suprarenal gland, is becoming more and more the chief reliance of medical men in the treatment of this distressing malady. Its action is prompt and reasonably certain. It dries up the secretions, opens the stenosed nostrils by reducing turgescence, constricts the blood-vessels and blanches the membranes. "Almost as if by magic," as one practitioner has said, "it relieves the edema and coryza, stops the pain and clears the head."

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THERAPEUTIC NOTES.

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GASTRIC IMMOTILITY. A large proportion of all cases of indigestion are the result of weakness of the muscular walls of the stomach. Insufficient motility is followed by dilatation and this by excessive fermentation of the ingested food. To overcome the presenting condition it is urgently necessary to increase the muscular activity of the stomach walls, and it is well known that this is one of the most valuable properties of **GRAY'S GLYCERINE TONIC COMP.** Increased activity of the muscles of the stomach means improved circulation, and this in turn exerts a beneficial influence on the secretory functions. Thus, excessive fermentation and other distressing symptoms are logically overcome with actual instead of temporary improvement in the whole physical condition.

THE THREE AGES OF WOMAN.—With the climacteric, the sexual life of woman is brought to a close and is considered by some authorities as the most critical era of her existence. Various disturbances of the circulatory, nervous and digestive systems as well as of the pelvic organs are usually characteristic of this period and are manifested many times by hot flashes, headache, melancholia, vertigo, neuralgia, etc. For its calamative and sedative action upon the nervous system as well as for its normalizing effect upon the vasomotor system, **Hayden's Viburnum Compound** seems to have proven, as a result of twenty-six years of clinical investigation to be a most satisfactory remedy from a therapeutic stand-point for administration just preceding, at the time of, and following the menopause.

TONGALINE FOR RHEUMATISM.—A physician makes the following statement: "I consider Tongaline far superior to any preparation for rheumatism, neuralgia, grippe, gout and similar complaints, and it has given me such uniform satisfaction that I rely upon its action most implicitly. I was first impressed with the unusual merits of Tongaline by the great benefit which my wife derived from its use, and this was all the more remarkable because she tolerates salicylates in any other form very poorly, but whenever she feels the first symptoms of rheumatism, the attack is at once controlled by taking Tongaline for a very short time."

THE NECESSITY FOR HEMATICS AFTER MISCARRIAGES.—If for any reason pregnancy is abruptly terminated before the time at which it would normally end, the condition becomes distinctly pathological. Delicate structures, especially those of the genera-

tive organs, are suddenly arrested while in a stage of active development, and a retrograde process has to be prematurely established. There naturally follows a marked depression of the whole nervous system, because of its unprepared state for meeting an event unexpected and unnatural. More important than all, however, is the fact that certain growing tissues that would separate normally at the end of pregnancy, in early stages are so closely attached to the uterine wall, that premature delivery always means tearing them away, leaving ragged, lacerated surfaces and an inevitable retention of tissue that because it has no further purpose must be either thrown off or absorbed by the organism. The extreme liability to infection at this time is well-known, and is directly due to the predisposition which attends this invariable presence of dead or dying tissues. From the foregoing, it must be apparent, that the effect of every miscarriage is depressing in character. Every organ cannot fail to feel the pernicious imprint, and there is a logical falling off of every vital process. Because of the formation and absorption of ptomaines and toxins of varying degrees of virulence, there is always more or less vitiation of the blood and disintegration of its corpuscular elements. While the hemolysis may not be extreme, it is generally sufficiently marked to leave no doubt that it is a prominent factor in determining the duration of convalescence and the completeness of recovery. In regard to treatment it seems hardly necessary to speak of the importance of thorough antiseptics nor of the frequent necessity of removing decaying material. These things are well appreciated by physicians generally. But what should be emphasized is the great importance of vigorous reconstructive treatment after miscarriages, in order to hasten the restoration of normal conditions, with all that this may mean on a woman's whole future health. Clinical experience has shown that **Pepto-Mangan (Gude)** has an especial value in these cases, for it not only supplies the urgent needs of the blood, but directly promotes the elimination of ptomaines through the natural channels. The phagocytic process is stimulated, and as a supply of good active blood is produced, the uterus and related organs are vastly helped in their effort to return to normal conditions. Digestion and assimilation are aided and the general vitality reinforced to a marked degree. In a word, **Pepto-Mangan (Gude)** is an unsurpassed tonic wherever there is a lowering of blood quality, from no matter what cause, and the definite positive benefits which follow its administration leave no further recommendation necessary.

POWDER BURN OF FACE.—About a year ago I was called in a hurry to relieve the suffering of Carl Rucker, of this city, 10 years old, who when playing with other boys exploded about two ounces of coarse black shooting powder in a little earth mount, and not being quick enough to turn away got the most of the discharge into his face; even the conjunctivae of both eyes were blackened, and from the burn and subsequent inflammation shut tight; one of the ears also got burned very badly. To extract the powder from the skin I have in years gone by applied a thick layer of castile soap made into a sort of dough, and as I had to deal here with the inflammation and pain beside, I scraped a cake of shaving soap, mixed it thoroughly with antiphlogistine, and applied it about one-half inch thick all over the face and ear, leaving a hole for the

eyes, nostrils and mouth. About one-half hour later the little patient, a very sensible child, rested very comfortable, free from pain and slept a few hours soundly. About 24 hours later I removed the whole mask from the boy's face and to my great delight and surprise the application had drawn out every kernel of the powder. The inflammation had been greatly reduced, pain was all gone and the face appeared almost natural again with the exception of the sclera of both eyes, which I treated with a solution of cocaine adrenalin. Another remarkable circumstance is the fact that the boy at the same time got entirely rid of his freckles, not a trace of the latter could be detected. For about a week the face got anointed with cold cream twice daily, and being well, was discharged as cured.—*E. Kuder, M. D., Coffeyville, Kans.*

NEVER WITHOUT CALCIDIN.—I have the highest regard and praise for Calcium Iodized-Calcidin (Abbott), having in my own simple way no doubt saved the life of a child 20 months of age (one of twins). Croup complicated with congestion of lungs. The condition was gravel temperature 105.6; one convulsion after another. The condition, as it was found, had been existing only six hours before my arrival. I ordered Calcidin every ten minutes for two hours, then every 30 minutes with calomel, gr. 1-10 every 30 minutes; hot foot bath, in fact above hips; cold applications to head and neck. I expected the child to die, so did her parents when they called me. I returned in six hours. Tem. 101.8, and breathing very good indeed. In one week the child was well. Two years before I had a case exactly like this one; I have particulars, and the child died eight hours after I saw her. I think I am safe in saying I was the means, with the aid of Calcidin and Nature, in bringing back the life that was fast coming to a close. I shall always use it. I am never without the drug a minute.—*Dr. Frank S. Myers, Youngstown, Ohio.*

ELECTRICAL HEATING DEVICES.—The relation of electricity to human life is far from being perfectly understood and while it has taken a very active part in assisting the medical profession in research and scientific study it has but lately proven a valuable assistant in hospital work. In surgery electrical devices have been in use in a small way for years. The Roentgen rays, the magnetic device for removing metal splinters from the eye, the electric battery and the electric massage were all wonderful discoveries and have added much to the comfort and longevity of the human race. The most recent achievement along these lines was the development and perfection of the electric heating devices and sterilizers for the use of doctors, surgeons, dentists and hospital work. The method of developing heat by electricity is ideal because it requires no fuel and there is no fire, flame, odor, or disagreeable product of combustion. The heat is ready in an instant and can be easily and quickly regulated to keep any desired temperature for an indefinite period. After months of careful experimenting and designing the General Electric Company has developed a number of heating utensils and appliances adapted to general use in hospitals, dispensaries, and in the offices of physicians and dentists. These devices can be used wherever there is suitable wiring and many of them can be connected to the ordinary electric light socket. Only with the electric utensils is it possible, in emergencies, for the nurse to heat bandages and dressings



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or to prepare food and drink in the patient's room. The electrical sterilizers are designed specially for surgical and dental use. The vessels are made of cast aluminum, nicely finished inside and out and provided with trays and suitable supports for instruments when immersed. The heating element furnishes three temperatures, controlled by an indicating switch.

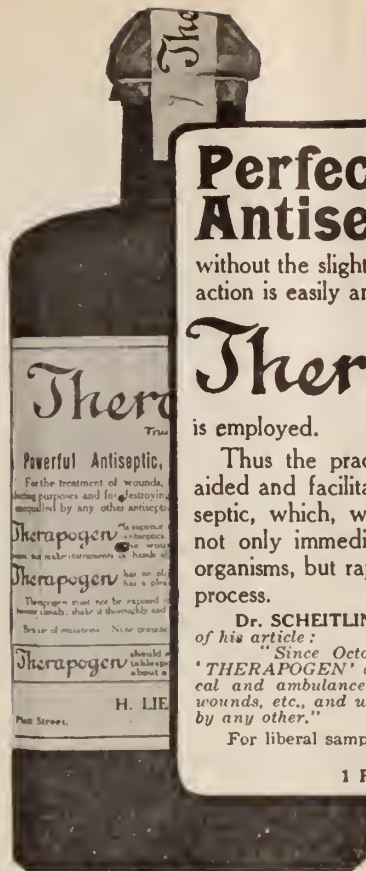
Perhaps the greatest convenience of them all is the bandage heater, consisting of an electrically heated water pan and an inner dish for smaller bandages and dressings. The outer vessel is made of sheet aluminum and the inner one of tinned copper—both are seamless. Suitable handles are provided. The heating device has two regulating units and will reach the boiling point very quickly on the high heat and maintain it on the low heat. The bandage heater is convenient, simple and easy to keep clean. The liquid heaters can be used for many different purposes as they are suitable for sterilizing small instruments, for heating water or preparing any liquids. The dishes are of seamless, tinned copper with an outer shell of aluminum and can be handled and washed like an ordinary kitchen utensil. The best feature is that they are not injured by overheating or boiling dry through oversight. The pint and quart sizes have covers with a removable central portion so that an ordinary nursery bottle may be inserted and its contents quickly warmed by turning on the current. The electric heating pad is a great improvement over the old hot-pack or leaky hot water bottle on account of its constant temperature, lightness and flexibility. It is always ready for immediate use and will maintain any one of three degrees of heat as long as desired. The pads for hospital use are furnished with muslin slips and the waterproof type is covered with rubber cloth. The pad is 11 inches by 15 inches and a half-inch thick, weighing only 11 ounces. An attached thermostat prevents the temperature from exceeding a safe limit. Fifteen feet of flexible cord enables the pad to be attached to any incandescent lamp socket.

In the preparation of light foods for the sick room the electric cooking utensils for ward use are most convenient. The General Electric Company has grouped a number of the best devices, including a table wired for immediate connection, especially for diet cooking in hospitals. The outfit includes a two-quart cereal cooker, a two-quart tea kettle, coffee percolator, seven-inch frying pan, broiler, grid and oven. The quart heater may be used as a liquid heater, an egg boiler or a baby milk warmer. The devices are all very simple, sanitary and convenient for general use. The smaller kettles can be attached

to the lighting circuit and, being provided with two heats, the water can be kept boiling with a very small and economical current consumption. Connected with the ordinary light socket, the electric coffee percolator will make the best of coffee in a very few minutes. Like all the devices it is attractive in design and easy to clean. The outside is highly polished aluminum and the inside of sheet copper heavily tinned. There is no flame or danger and the percolator is always ready for use. The electric chafing dish has none of the inconveniences of the alcohol or gas devices. Made of aluminum and plated copper it can be used for a hundred different receipts. Nearly always the hospital or sick room requires some auxiliary heat. The gas log is not suitable because it vitiates the air and open fires are always dangerous. A number of prominent hospitals have adopted the General Electric luminous radiators which produce instant heat and a cheerful glow with the turning of a switch. The heater consists of an ornamental iron frame with a polished copper reflector and large cylindrical heating bulbs or glowers. The heat radiates outward, distinguishing it from other devices which depend on a slower process of setting up currents of warm air. The radiator may be readily moved from room to room or permanently installed in the fireplace. There is also a non-luminous radiator adapted for continuous service. Among the electrical devices most popular in hospital work should be mentioned the electric flat iron. These irons are installed in the laundries of nearly all new hospitals. The three-pound irons may be carried about the wards and attached to the lighting circuit. The adoption of the electric heating devices by hospital boards and physicians is but another step in establishing the importance of electricity to life, and demonstrates beyond possible doubt that the age-electric is not far beyond the horizon. Each year marks some new discovery in the application of electricity to the medical profession.

The administration of thyroid extracts or iodides and the application of iodine ointments are only of value in recent cases of soft or parenchymatous goitres, especially in young persons.

International Journal of Surgery.



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THERAPEUTIC NOTES.

PATHOLOGY AND TREATMENT OF HAY FEVER.—One of the most striking pathological features of this malady is a turgescence of the turbinal tissues due to extensive dilatation of the capillaries. That this is the result of an angioneurosis, involving a more or less pronounced local vaso-motor paralysis, is pretty generally conceded. In the treatment of hay fever with Adrenalin Chloride it has been suggested that weak solutions, frequently applied, are apt to yield better results than the occasional application of strong solutions. The application of the solution of Adrenalin Chloride stimulates the vaso-motor supply, resulting in a contraction of the capillaries. Overstimulation, by reaction, is very sure to result in a complete paralysis of the vaso-motor supply in the region affected. On the other hand, gentle stimulation with weak solutions is not so likely to be followed by a reaction. Solution Adrenalin Chloride (1:1000) may be diluted with normal salt solution and sprayed into the nares and pharynx. Adrenalin Inhalant may be preferred to the aqueous solution, for obvious reasons. This product contains one part of Adrenalin Chloride in one thousand parts of an aromatized neutral oil base, with 3% Chloretone. It is vaporized by means of a nebulizer. Adrenalin Ointment may be applied to the turgescient nasal mucosa by means of a cotton applicator. Henry Guy Carleton (*Therapeutic Gazette*, June, 1907) says that "Relief can be accomplished more quickly by smearing one or two minims of ointment containing 1:1000 of Adrenalin between the brows and half-way down the side of the nose than by the inunction and spraying of the nasal mucosa." The *modus operandi* is ex-

plained as follows: "The effect is to allay the irritation of the supraorbital, supratrochlear, and infratrochlear and frontal nerves, and the superior and inferior nasal, the nasal rami of the superior maxillary, and the nasopalatine nerves, all of which are involved in a severe attack. Those rami in the posterior nares which may be affected will be relieved simultaneously, exactly as all branches of the supraorbital affected in a supraorbital neuralgia are relieved when an application of Adrenalin Ointment is applied only to the supraorbital foramen." Messrs. Parke, Davis & Co. issue a brochure on the treatment of hay fever, which will be sent gratis to any medical man upon request. We suggest to our readers that they send for the brochure, as hay fever is an exceedingly interesting and timely subject.

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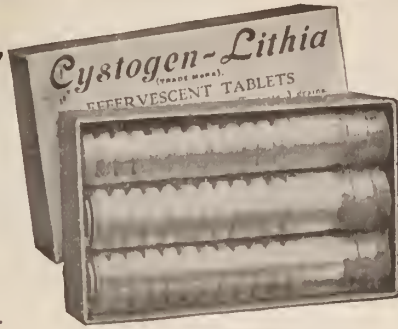
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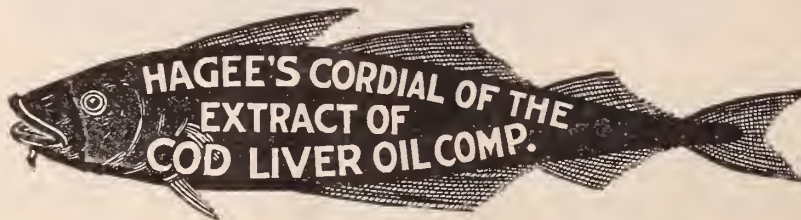
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Second Avenue and Twentieth Street, New York City.

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ORIGINAL ARTICLES.

THE HISTORY OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF VERMONT.

Before the establishment of Medical Schools in this country, medical students either went abroad to study or served an apprenticeship with some practicing physician. Many of the physicians of the country at that time had received their education in European Medical Schools and were thoroughly qualified to give instruction in Medicine, and also to provide good clinical opportunities by taking students with them on their daily rounds.

We do not know when such Medical instruction was first given in Burlington, but it is fair to presume that it had been previous to 1791, for the Medical Department was authorized in the charter given the University of Vermont by the state legislature that year. The legislature of the state in an act of incorporation of the County Medical Societies gave them the authority to grant diplomas to practice Medicine. Students were required to study Medicine with some prominent physician for three years, and then were subjected to an examination by the Censors of the nearest County Society, and, if the examination was satisfactory, were granted a diploma to practice Medicine. The following is a copy of one of the diplomas:

By the third Medical Society of the State of Vermont, as by law established: Mr. William Atwater, having presented himself to this Society for examination on the anatomy of the human body and the theory and practice of physic and surgery, and being approved by our censors, the Society willingly recommend him to the world as a judicious and safe practitioner in the different avocations of the medical profession. In testimony whereof we have hereunto affixed the signature of our president and seal of the Society at the Medical Hall in Burlington, the 2d Tuesday of June, A. D. 1813.

"JOHN PERIGO, Secretary.

"JOHN POMEROY, President."

Previous to 1800 there were but three Medical Schools in this country. The Medical College of Pennsylvania, (now The Medical Department of the University of Pennsylvania), the Medical Department of Kings College, (now Columbia), and Harvard Medical School.

The first action taken by the University of Vermont to establish a Medical Department was in 1804, when Dr. John Pomeroy was appointed lecturer in Anatomy and Surgery. Nothing was done under this appointment however, and 1809 he was appointed professor of Medicine, Anatomy and Surgery. Students came to him from different parts of the state and received instruction at his office and also at the bed-side of his patients.

In a short time the number of students seeking medical instruction became larger than could be accommodated at Dr. Pomeroy's office, and in 1814 a building on Water Street was secured and the first course of lectures upon Anatomy and Surgery was given by him to a class of twelve students.

Other physicians in the vicinity were induced to assist Dr. Pomeroy in giving instruction, and by 1821 instruction was being given in Anatomy, Physiology, Chemistry, Materia Medica, Botany, Pharmacy and Surgery.

In 1822 the Medical Department of the University of Vermont was fully organized, and the first complete course of regular lectures was given during that autumn, and the first class, consisting of four students was graduated in 1823. The number of students increased rapidly and the success of the enterprise seemed to be assured. Two years later a class of fifteen was graduated, and in 1829 it seemed advisable to provide a building for the exclusive use of the department, and this was erected at the south end of the College Green.

During this time medical teaching in Vermont had been divided between the Medical Department of the University of Vermont, and the Vermont Academy of Medicine, at Castleton, Vermont, which was organized in 1818.

In 1827 the Clinical School of Medicine, later called the Vermont Medical College, was

established at Woodstock, Vermont. There was also the Medical School at Dartmouth, which was established in 1797.

All these schools were dependent almost entirely upon the scattering population of Vermont and New Hampshire for students. It very soon became apparent that there was not a sufficient number of students to maintain so many Medical Schools; the attendance at the Medical Department of the University of Vermont became smaller and in 1836, with the death of Dr. Lincoln who had been one of the most active members of the Faculty, the department suspended. There had been one hundred and sixteen (116) students graduated during this time (1823-1836).

of Anatomy and Physiology; Horatio Nelson, M. D., professor of Surgery; Walter Carpenter, M. D., professor of Materia Medica and Therapeutics; Orrin Smith, M. D., professor of Obstetrics; Edward Kane, M. D., professor of the Theory and Practice of Medicine; and Henry Erni, M. D., professor of Chemistry and Pharmacy.

The success of the department was apparent from this time and the attendance increased each year, so that the medical building had to be enlarged. The tide of sentiment, in regard to medical education, which was on the ebb at Burlington in 1836, was returning and the Vermont Academy of Medicine, at Castleton, suspended in 1861 and the other Medical Col-



THE FIRST MEDICAL COLLEGE BUILDING.

Four years later, Dr. S. W. Thayer, who was then practicing in Northfield, Vermont, became interested in the re-organization of the department and finally succeeded in bringing this about in 1853, when lectures were resumed in the Medical building at the south end of the College Green. The Faculty elected by the corporation at this time was as follows: Samuel White Thayer, Jr., M. D., professor

leges in Vermont were feeling its influence. In 1856 the Faculty of the Vermont Medical College at Woodstock resigned at the end of the session and this school went out of existence. The Vermont Academy of Medicine at Castleton suspended in 1861 for one year, but instruction has never been resumed.

In 1870 the department had again outgrown its quarters and the sum of two thousand five

hundred dollars (\$2,500) was subscribed by the citizens of Burlington to enlarge and improve the building. The seating capacity of the lecture hall was increased to about two hundred, a new dissecting room was built and such repairs made as were necessary to put the building in good condition.

In 1884 the capacity of the building having been exhausted, a larger one was secured for the use of the department at the north end of the College Green through the generosity of John P. Howard who gave fifty thousand dollars (\$50,000) for this purpose. The amphitheatre for lectures had a seating capacity for over three hundred students. There were also rooms for laboratory work in Chemistry and Anatomy, room for the museum and waiting rooms for students. Very soon after this, laboratories for Histology and Pathology and Urinalysis were equipped in the old medical building.

The prevailing method of medical instruction had been by didactic lectures; now the value of laboratory instruction as part of a medical course began to be recognized, but it was not until well into the nineties that any special effort was made to bring about the general adoption of a graded course of study, although a few schools had adopted this plan of instruction much earlier. In 1897 the Medical Department of the University of Vermont adopted the graded course of instruction and recitation courses were incorporated in the regular curriculum, the laboratory facilities were increased very materially, and the building had to be changed to provide the additional rooms which this new method of teaching made necessary.

The time required to complete a course of medical instruction at the University of Vermont has materially changed during the past fifty years. Two courses of lectures of twelve weeks each were all that was required at first; later the course was lengthened to two years of sixteen weeks each; then to three years of sixteen weeks each; again it was increased to three years of twenty weeks each, and then to four sessions of six months each. This was not a sufficiently long time to do the work properly and the course was again lengthened to four sessions of seven months each; the time now required is four years of seven and

one-half months each, or thirty weeks of actual instruction for each session.

There have been many men of both local and national reputation connected with this department of the University. In the list we find the names of John Pomeroy, Nathan R. Smith, Nathan Smith, Alonzo Clark, William Paddock, S. W. Thayer, Edward E. Phelps, Benjamin Lincoln, Horatio Nelson, Orrin Smith, John Ordronaux, A. B. Crosby, William Darling, J. L. Little, H. D. Holton, William A. Hammond, Greene Hammond, D. B. St. John Roosa, Hon. E. J. Phelps, A. L. Ranney, J. W. Wright, W. O. Moore, G. M. Garland, A. T. Woodward, J. H. Woodward, R. A. Witthaus, William B. Towles, A. M. Phelps, Robert A. Taylor, Hon. W. L. Burnap, Henry Janes, A. P. Grinnell and many others.

The men who were the most actively interested in the department during the first years of its history, and to whom the University is indebted more than to any others for the existence of the Medical Department are, Dr. John Pomeroy, Dr. Benjamin Lincoln and Dr. S. W. Thayer. These men were untiring in their efforts to establish the Medical School on a satisfactory basis and to bring about conditions which would ensure its successful continuance. They overcame difficulties that would have discouraged less enthusiastic men, and the Medical Department of the University is a monument to their untiring efforts.

For many years the department had only a nominal relation with the University, and although the professors were appointed by the corporation, the department was managed independently of the University by the Medical Faculty. In 1899 it was reorganized and became a coordinate department of the University under the control of the Board of Trustees.

The building which had been occupied by the department since 1884 was destroyed by fire December 3, 1903, and the Trustees of the University began the construction of the present building the following August and completed it in January, 1906.

Last year the Trustees appropriated five thousand dollars (\$5,000) for additional equipment for the various laboratories, which with the equipment already in use, will furnish the laboratories in a very complete and satisfactory way. The reorganization of the school as a

coordinate department of the University, the splendid new building with its complete equipment, and the high standard of education maintained, place the Medical Department of the University of Vermont among the first medical colleges.

The Trustees of the University incurred a large debt in erecting and furnishing this building, which they hope the friends and alumni of the department will help meet by making their contributions to the University Endowment Fund, payable to the Medical College debt.

a beautiful and imposing structure, built of red brick with trimmings of gray terra-cotta, and is entirely in harmony and keeping with the other college buildings, and together they form a group of which the University and Alumni may well be proud.

The medical building is one of the largest of the University buildings, being one-hundred-seventy-four feet long by seventy feet wide, and three stories high. It is a thoroughly fire proof structure, heated by steam, ventilated by the most approved ventilating system, and lighted by gas and electricity. The



THE OLD MEDICAL COLLEGE.

THE UNIVERSITY OF VERMONT COLLEGE OF MEDICINE.

A detailed description of the new building.

In August, 1904, the Trustees of the University of Vermont began the construction of a new building for the Medical Department which was completed in January, 1906, at a cost of \$125,000. This building is located on the site of the old building which was burned, at the north end of the College Green. It is

elevator, ventilating fans, etc., are run by electric motors.

The newer methods of teaching medicine to small sections of students, the recitation courses, the laboratory work, practical courses, and research work, require many rooms for these exercises. All these have been provided for and arranged in a most convenient way. There are laboratories for anatomy, chemistry, histology, pathology, physiological chemistry, bacteriology, clinical microscopy, pharmacology and electro-therapeutics; lecture halls,

recitation rooms, rooms for practical work, etc. The laboratories are all large, perfectly ventilated, and located in the building so that they have a north light, which is especially desirable for the satisfactory use of the microscope. The lecture halls and recitation rooms are large and furnished with opera chairs, the seats being arranged so that every student has an unobstructed view of all the demonstrations and clinics.

Situated on the first floor is the office, a faculty room, the large lecture hall seating one hundred seventy-five students, the bacteriological laboratory, the laboratory of histology, embryology, and pathology, and the library. There are also stock rooms, private rooms for the laboratory instructors, the rooms for section work in physical diagnosis and demonstrative obstetrics.

The office is a room twenty-five feet square. The secretary of the Faculty is here a part of each day during the session and all business with students is transacted in this room. In connection with the office is a fire proof vault where the records of the college work and all important records and papers are kept, a coat room for the faculty and instructors, lavatory, etc.

The faculty room, which communicates with the office by a corridor, is 18x26 feet. The beautiful quartered oak table, twelve feet long in this room, was made and presented to the Medical Faculty by the Champlain Manufacturing Company, who built the building.

The laboratory of embryology, histology, and pathology is 27x50 feet. It is furnished with desk room for forty students, each student having a locker in the desk in which to keep his specimens and outfit. Students are also provided with a microscope and such apparatus in general as is necessary for pursuing these courses.

The laboratory of bacteriology and clinical microscopy is 25x50 feet and has desks for forty students. One side of the laboratory is furnished with hood to allow students to do such work as is attended with the production of vapors or disagreeable odors, where these are carried out of the room. Each student has a locker and is provided with a microscope fitted with an Abby condenser and an oil immersion lense, and such other apparatus as is necessary for satisfactory work in these subjects. There is

also a large incubator where students watch the growths of germs and cultivate them for examination with the microscope.

Between these two laboratories is a work room for the laboratory instructors, where the sections are prepared for class work, etc., also a large stock room for storing the gross material for both histological and pathological work.

The library has shelf room for several hundred volumes. It is light and especially adapted for the purpose.

On the second floor is a lecture hall that will seat one hundred students, in connection with this is a large room for the apparatus used for demonstrations in the lectures in chemistry and physiology, the chemical laboratory, a private chemical laboratory, a laboratory for electro-therapeutics, stock rooms, private rooms for the laboratory instructors and professors, a room for instruction in the use of plaster of paris for splints, casts, etc., and three large recitation rooms.

The chemical laboratory is 27 x 60 feet and has a complete equipment for doing work in this subject. Each student has a locker where he keeps the apparatus which he uses in the laboratory. The large number of hoods for removing the disagreeable vapors and gases from the room, the asphalt floor, the large and well lighted room, make this an especially satisfactory laboratory. Courses in general chemistry and also in physiological chemistry are given here. At the end of this room is a large stock room for the apparatus and supplies for the laboratory. Adjoining this is the private laboratory for the professor of chemistry where he can do medico-legal work, or take students for courses in special research work, or give post graduate instruction to physicians. It is expected that next year the laboratory of electro-therapeutics will be furnished with complete apparatus for teaching this subject.

On the third floor is the dissecting room, a room for prosection, a room for operative surgery and anatomical demonstration to sections of the class, a room for physiological experiments, recitation rooms for anatomy and gross pathology and the museum.

The dissecting room is 25x75 feet, is lighted both from the side and from the top, has a stone and cement floor, and is furnished with

iron frame, slate top tables. There are many wall cases in the room where specimens which will be of service in the study of anatomy are kept. These consist of bones, (whole and various sections), articulations, (both dry and wet), dried dissections of muscles, arteries, and nerves, and numerous specimens of the various viscera, including the brain. In connection with this room is a room for storing anatomical material.

instructors and demonstrators, completes the suite of rooms used for the teaching of anatomy.

The physiological laboratory is 25x50 feet and is equipped with apparatus for testing blood pressure, studying nerve action, muscle contraction, etc., etc. Physiological processes are observed by the study of frogs, rabbits and guinea-pigs.

In the basement, which is above the level of



THE NEW MEDICAL COLLEGE.

Adjoining these rooms is a room for prosection where all the dissections for class demonstration are prepared, and the preparations and specimens used in demonstrations and lectures are kept. This room communicates with the electric elevator, so that the material for a demonstration or lecture can easily be taken to the amphitheatre on either the first or second floor and returned to this room after the exercise.

Adjoining the room for prosection is an amphitheatre where anatomical demonstrations are given and surgical operations on the cadaver are done. A room for recitations in anatomy, a private room for the use of the

the ground for about one-half the length of the building, is the laboratory for pharmacology, a large reception room for students, and the coat room for students, toilet rooms, stock rooms for general supplies, and rooms for the heating and ventilating apparatus.

The laboratory for pharmacology is 25x40 feet and is furnished with apparatus for making medicinal preparations, testing drugs and experimental work in therapeutics.

The reception room for students is a large room 25x50 feet, furnished with settees and tables where the students may study or read the papers or periodicals with which the room is provided. The coat room just across the

hall completes a pleasant and convenient suite of rooms on this floor for the use of students.

The two large steam boilers furnish ample heat to make the building thoroughly warm in the most severe weather. The most approved system of ventilation was installed whereby a current of fresh air is kept circulating through each room by means of a fan operated by an electric motor.

In a word, every effort has been made in the arrangement of the rooms, in the heating, ventilating and lighting, and in the equipment of the building to have a thoroughly modern structure perfectly adapted to the needs of medical teaching.

This fine new building and its splendid equipment for laboratory work and practical teaching make this one of the most desirable medical schools in the country, and the University of Vermont can offer to medical students opportunities for study that are excelled by few institutions.

THE MEDICAL CURRICULUM.

Some of the Changes in the Methods of Medical Teaching, and the Curriculum as Now Given in the University of Vermont College of Medicine.

The course of study as well as the methods of teaching medicine have changed very materially. Twenty-five years ago instruction was given almost entirely by didactic lectures. There was no attempt to grade the course; all students listened to lectures in all subjects, these lectures being repeated year after year. Attendance was optional. One room in which to give the lectures and six or seven professors was all the outfit necessary to establish a first class Medical School. There was little, if any, laboratory work, no practical work, no examination of patients by students. Clinical teaching differed from regular teaching only by having a patient present at the lecture. Pathology was but little understood and imperfectly taught. The examinations of the blood, urine, sputum, stomach contents, etc., as an aid to diagnosis, had not been recognized.

All this has been changed. With the rapid advance in the knowledge of the cause of disease there have come new and more perfect methods of investigation. The importance of

laboratory training has been fully demonstrated and the futility of trying to teach Medicine satisfactorily without the actual contact of the student and patient has been made apparent, and present methods of examination make it possible to arrive at a positive diagnosis which could not have been done before.

In 1896, President Eliot wrote substantially as follows: "Within twenty-five years the whole method of teaching medicine has been revolutionized throughout the United States. The old medical teaching was largely expository; it gave information at long range about things and processes which were not within reach or sight at the moment. The main means of instruction were the lectures, surgical exhibition in large rooms appropriately called theatres, rude dissecting rooms with scanty supervision, and clinical visits in large groups. The lectures were repeated year after year with little change, and no graded course was laid down. There was little opportunity for laboratory work. The new medical education aims at imparting manual and ocular skill, and cultivating the mental powers of close attention through prolonged investigations at close quarters with the facts, and just reasoning on the evidence. The subjects of instruction are arranged in a carefully graded course, which carries the student forward in an orderly and logical way from year to year. Laboratory work in anatomy, medical chemistry, physiology, histology, embryology, pathology, and bacteriology demands a large part of the student's attention. In clinical teaching, also, the change is great. Formerly a large group of students accompanied a visiting physician on his rounds, and saw what they could under very disadvantageous conditions. Now clinical instruction has become, in many clinical departments, absolutely individual, the instructor dealing with one student at a time and personally showing him how to see, hear, and touch for himself in all sorts of difficult observations and manipulation. Much instruction is given to small groups of students, three or four at a time—no more than can actually see and touch for themselves."

There have been very marked changes in medical teaching since 1896, involving both the methods of teaching and the time required to give a satisfactory course of instruction.

The standard of medical education is decidedly higher than it was ten years ago, and

decided changes in the medical curriculum have been necessary to bring this about.

The Medical Department of the University of Vermont has made every effort to keep abreast of this rapid advance and has made changes in the curriculum from time to time, both in the methods of teaching and the time required.

The new building for the University of Vermont College of Medicine, with its large and well equipped laboratories, its recitation rooms and rooms for practical work, have made it possible to incorporate in the curriculum today all the courses of study and methods of teaching which are included in the curricula of the best medical schools of this country.

cal chemistry, principles of surgery and normal physical examination.

The third year is devoted to the study of medicine, surgery, obstetrics, special pathology, materia medica, bacteriology, clinical microscopy and physical diagnosis.

The fourth year is devoted to the study of medicine, surgery, obstetrics, therapeutics, and the special subjects related to medicine and surgery. Clinical teaching forms a considerable part of the curriculum during the third and fourth years.

By grading the course of instruction in this way much unnecessary repetition is avoided, and the work is more satisfactory in every way.



DISSECTING ROOM.

The general plan of the curriculum as given in the University of Vermont College of Medicine, is as follows:

The first year is devoted to the study of anatomy, physiology, chemistry, histology and embryology.

The second year is devoted to the study of anatomy, physiology, chemistry, pathology, materia medica and pharmacology, physiologi-

The work of each year, although correlated with the work of the entire course, is practically a course by itself, and must be completed before beginning the work of the next year. Consequently, the student is graduated at the end of each year in the work of that year, and has the advantage of knowing at the end of each session the character of the work which he has done.

During the first half of the first year there are five hours lectures or demonstrations and four hours recitations each week in anatomy. There are also about one hundred hours practical work in dissecting; in physiology there are two hours lectures and two hours recitations each week; in chemistry there are two hours lectures, two hours recitations and three hours laboratory work each week; the work in histology consists of one hour lecture, one hour recitation and four hours laboratory work per week.

During the second half of the first year there are three hours lectures or demonstrations and two hours recitations each week, assigned to the study of anatomy, making a total of three hundred and ten (310) hours for the session; to the teaching of physiology there are assigned two hours lectures, two hours recitations and two hours laboratory work each week, or a total of one hundred and fifty (150) hours for the session; in chemistry there are given two hours lectures, two hours recitations and three hours laboratory work per week, or a total of two hundred and ten (210) hours teaching during the session; in histology there are the same number of hours teaching that was given the first half of the session, making a total of one hundred and eighty (180) hours; this gives an aggregate of eight hundred and fifty (850) hours teaching for the year.

The following table shows the number of hours in each subject:

DIVISION OF HOURS TEACHING, FIRST YEAR.

Subject.	First half.	Second half.	Year.
Anatomy	235	75	310
Chemistry	105	105	210
Physiology	60	90	150
Histology	90	90	180
Total hours	490	360	850

During the first half of the second year anatomy is taught by three hours lectures or demonstrations, two hours recitations each week and about one hundred (100) hours of practical work; physiology is allotted four hours

lectures and two hours recitations per week; chemistry is continued with the same number of hours teaching as the first year, the laboratory work being devoted to the study of physiological chemistry; there are two hours recitations and four hours laboratory work assigned to the teaching of pathology.

The work of the second half of the second year is made up as follows: anatomy, two hours lectures and two hours recitations per week, a total of two hundred and thirty-five (235) hours teaching for the session; physiology, two hours recitations per week, a total of one hundred and twenty (120) hours teaching for the session; chemistry is continued through the year with two hours lectures, two hours recitations and three hours of laboratory teaching, a total of two hundred and ten (210) hours for the session; pathology has the same number of hours teaching as the first half of the year making a total of two hundred and twenty (220) hours for the session; there are four hours instruction each week in materia medica, and two hours weekly, each in applied anatomy, pharmacy, medicine and principles of surgery, making a total of nine hundred and thirty-five (935) hours teaching for the year.

The following tables will show the number of hours teaching in each subject during the session:

DIVISION OF HOURS TEACHING, SECOND YEAR.

Subject.	First half.	Second half.	Year.
Anatomy	175	60	235
Chemistry	105	105	210
Physiology	90	30	120
Pathology	110	110	220
Medicine		30	30
Materia Medica		60	60
Pharmacy		30	30
Principles of Surgery ..		30	30
Total	480	455	935

During the third year, the student having finished the subjects of anatomy, physiology, chemistry, histology, embryology, laboratory and general pathology, and having had instruc-

tion in materia medica, pharmacology, principles of surgery, palpitation and percussion, is prepared to take up the subjects of surgery, medicine and obstetrics.

The instruction in medicine is arranged as follows: four hours of either didactic or clinical lectures, and four hours recitations each week, a total of two hundred and fifty (250) hours for the year; in surgery two hours lectures, two hours recitations and five hours of clinical teaching each week; there are also twenty-five hours of practical work in bandaging and the application of splints and plaster of paris splints and jackets, a total of two hundred and ninety-five (295) hours for the year; in obstetrics an average of three hours lectures and one hour recitation each week, with twenty-five hours of demonstration and practical work, a total of one hundred and thirty-five (135) hours for the year; in pathology

(120) hours; in materia medica two hours each week, and in physical diagnosis one and one-half hours each week, a total of nine hundred and eighty (980) hours of teaching for the session.

The following tables will show the number of hours teaching in each subject during the session:

DIVISION OF HOURS TEACHING, THIRD YEAR.

Subject.	
Surgery	290
Medicine	250
Obstetrics	135
Pathology	75
Bacteriology and Clinical Microscopy.....	120
Physical Diagnosis	45
Materia Medica	60
<hr/>	
Total number hours for session.....	980



LABORATORY OF PATHOLOGY AND BACTERIOLOGY.

three lectures each week, a total of seventy-five (75) hours for the year; in bacteriology and clinical microscopy, eight hours lectures and laboratory work each week for fifteen weeks, a total of one hundred and twenty

During the fourth year the study of medicine, surgery and obstetrics is continued, together with the following subjects: therapeutics, pediatrics, gynecology, neurology, mental diseases, diseases of the eye, ear, nose and

throat, dermatology, venereal diseases, hygiene and medical jurisprudence.

The work of this year is largely clinical, two hours or more each day being devoted to clinical teaching. At these clinics the members of the class examine the patients and make their diagnoses and suggest treatment; examinations of the blood, sputum, urine, feces, and stomach contents, are made by the students, when such examinations are indicated. They also make cultures from the throat, infected wounds, and pus, to determine the nature of the infection. They make microscopical examinations of the pathological specimens which are removed in the surgical clinics to determine the nature of the growths. This work is all done under the direction and supervision of the clinical instructor or an assistant, and the findings in each case are discussed before the class. The student is thus taught by actual application all the modern methods of diagnosis in the examination of patients.

This curriculum conforms to the suggestions made by the Council on Medical Education of the American Medical Association, and also to that adopted by the Association of American Medical Colleges.

The fact that the graduates of the University of Vermont College of Medicine have such a small percentage of failures in their examinations by State Boards is conclusive evidence that the curriculum is complete and the teaching efficient.

The following was taken from the report of the various state examining and licensing boards, as published in the Journal of the American Medical Association:

There were thirty-nine (39) graduates of 1905 who took examinations before various State Boards during that year, of these only one candidate failed to pass.

There were forty-eight graduates of the years 1901-1906 inclusive, examined by State Boards in either California, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Vermont or Washington, of these every man passed. There were three graduates of this period, 1901-1906, who took examinations in Oregon, they all failed. As 45% of the fifty candidates who took the examinations in Oregon in 1906 failed, and as only 5% of the 559 candidates who took examinations in New York the same year failed, it is only reasonable

to infer that the Board of Examiners in Oregon demand a very high standard of education. The result of the state board examinations in 1906, of graduates of the University of Vermont College of Medicine for the years 1901-1906 inclusive, was 51 examined, three failed, percentage of failures 5.9%.

The following which is a part of the list published in the Journal of Medical Association, May 25, 1907, giving the standard of medical schools rated by the percentage of failures of their graduates to pass State Board examinations during the year 1906, will give some idea of the comparative standing of the University of Vermont College of Medicine.

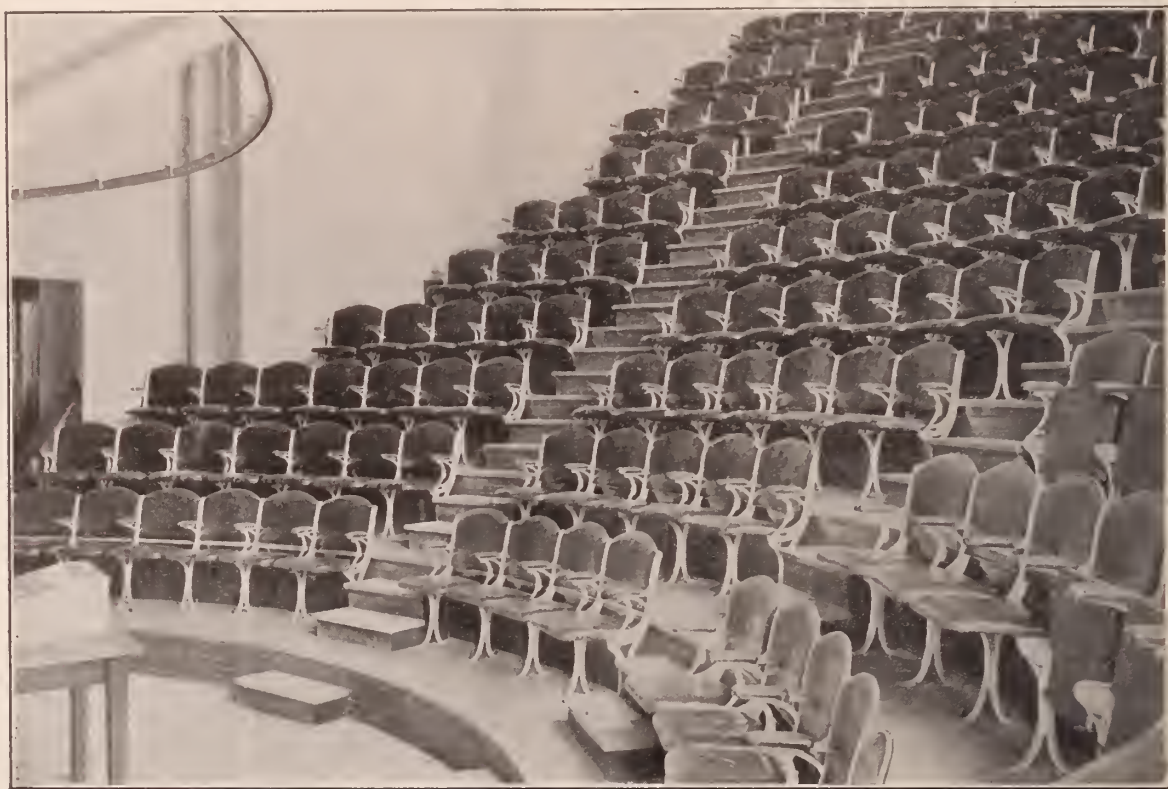
College.	No. Examined.	% Failed.
U. V. M. College of Medicine....	51	5.9
Cooper Medical College, Cal....	31	5.9
Tufts Medical College, Boston...	85	5.9
University of Buffalo.....	47	6.4
University College of Medicine, Va.	31	6.5
College of Physicians and Sur- geons, Chicago	259	6.6
Wisconsin College of Physicians and Surgeons	15	6.6
Medical Chirurgical Med. College, Philadelphia	112	7.1
Ohio Medical University	53	7.5
University Medical College, Kan- sas City	52	7.7
Indiana Medical College	136	8.8
Medical College of Va.....	55	9.1
University of California	34	9.5
Jefferson Medical College, Phila- delphia	218	9.6
Indiana Medical College.....	20	14.
Dartmouth	20	15.
College of Physicians and Sur- geons, Baltimore	77	15.6
George Washington University, Washington, D. C.	76	25.
Baltimore Medical College	144	27.
Kentucky School of Medicine....	37	45.

HOSPITAL, DISPENSARY AND CLINICAL FACILITIES.

It is a well recognized fact that a satisfactory course of medical instruction cannot be given without opportunity to incorporate a considerable amount of clinical teaching in the curriculum. Consequently medical schools must be located where they can take advantage of hospital and dispensary work. Medical schools that are located in the large cities have access to a very large amount of clinical material, but as only a stated amount of clinical work can profitably be combined with undergraduate

hundred thousand. The hospital facilities in Burlington have been increased from time to time by additions to the buildings to meet the increasing demand for hospital treatment, and still other additions and improvements in the hospitals are in process of construction.

The Mary Fletcher Hospital was founded in 1876 by Miss Mary Fletcher, who gave the munificent sum of four hundred thousand dollars (\$400,000) for buildings, property and permanent endowment. Some thirty thousand dollars (\$30,000) have been added to this fund by the endowment of rooms. The work



THE MAIN AMPHITHEATRE.

teaching, all clinical material in excess of the amount used is of no advantage, so that a school situated in a smaller town but being able to secure all the clinical material that can be profitably used in teaching can give as satisfactory a course of medical instruction.

Burlington is situated nearly in the center of a section of country which has practically no other hospital facilities between Montreal and Albany or New York City, and is a logical hospital center for a large part of this area having a population of between four and five

of this hospital has increased very rapidly during the past ten years, and the buildings have become entirely inadequate to care for the large number of patients seeking admission. The Trustees have begun the construction of large additions which will improve the facilities for work and will meet, somewhat at least, the increasing demand for hospital treatment.

The hospital, when the additions now under way are completed, will have a central building, two smaller buildings one at either side

of the main building and connected with it by a fire proof corridor, and two wards also connecting with the corridor, a central heating and lighting plant and a steam laundry. The present building will be the central or main building and on the first floor will have rooms for the administrative department, office, reception room, Director's room, library and record room. The second and third floors will have endowed rooms and rooms for hospital cases. The building to the east of the main building will be two stories high and devoted entirely to private cases, and will accommodate twenty-five patients. This will increase the capacity of the hospital very materially. A building the same size and to the west of the main building will be devoted to surgical and dispensary work. The first floor will have two operating rooms which have been made necessary by the large number of operations and an amphitheatre for clinical work, both medical and surgical. There are also sterilizing rooms, anasthetizing rooms, recovery rooms, dressing rooms for the surgeons, rooms for X-ray work, and rooms for the examination of patients. The second floor will have rooms for the house surgeons, assistants and orderlies. The basement of this building will be devoted almost entirely to dispensary work. There will be a waiting room, a number of rooms for the examination of patients, drug room, pathological laboratory, etc.

This building has been planned to provide convenient and well equipped rooms for the general dispensary work, the general medical and surgical work of the hospital, and clinical teaching.

Opening from the rear of the corridor which connects these two buildings with the main building will be two wards, one for men and one for women. The Trustees contemplate the building of other wards at some later time, which will connect with this corridor.

The hospital has been caring for a large number of out-patients for several years. The new rooms for this department will render the work more efficient and will meet the rapidly increasing demand for the care of patients who do not require regular hospital treatment. The hospital has been treating about two thousand patients annually, and these additions will increase the capacity to at least three thousand.

The Fanny Allen Hospital was organized by Bishop Michaud, Bishop of the Diocese of Burlington, October, 1894, and is situated just outside of Burlington in a quiet and healthful locality and easily accessible by trolley cars. This hospital has been enlarged twice since its organization to meet the demands which have been made for treatment. The staff of four surgeons and four physicians is made up of competent men, many of them being connected with the University of Vermont College of Medicine. This hospital cares for a large number of medical and surgical cases each year.

The Vermont Hospital for the Insane, at Waterbury, has something more than five hundred patients, and medical students from the University have clinics there during the session. This furnishes an abundant opportunity to see and study all forms of mental diseases, under the direction of the professor of mental diseases in the College of Medicine, and who is also connected with the hospital.

The Home for Destitute Children and the Providence Orphan Asylum, with a total of about three hundred children, furnish ample opportunity for the study of diseases of children. Sections of the class visit these institutions in company with the attending physicians from time to time during the session.

The Burlington Lying-In Hospital has recently been organized. The purpose of this hospital will be to care for such obstetrical cases as need and desire hospital treatment. For the present this work will be done at the patient's home, but eventually it is expected to provide a building where these cases can be cared for. Such nursing as is necessary will be provided by the Mary Fletcher Hospital. The Howard Relief Society will co-operate in this work so far as they may be able. Members of the graduating class will attend these cases in company with the staff.

The advantages which Burlington has to offer in the way of private sanitariums, hospitals and homes for children, as well as the professional services available both in private and hospital practice, are attracting large numbers of patients. The material available for clinical teaching is increasing each year and in some departments there is already more than can be used in the time scheduled for this work. There is, therefore, no occasion for students

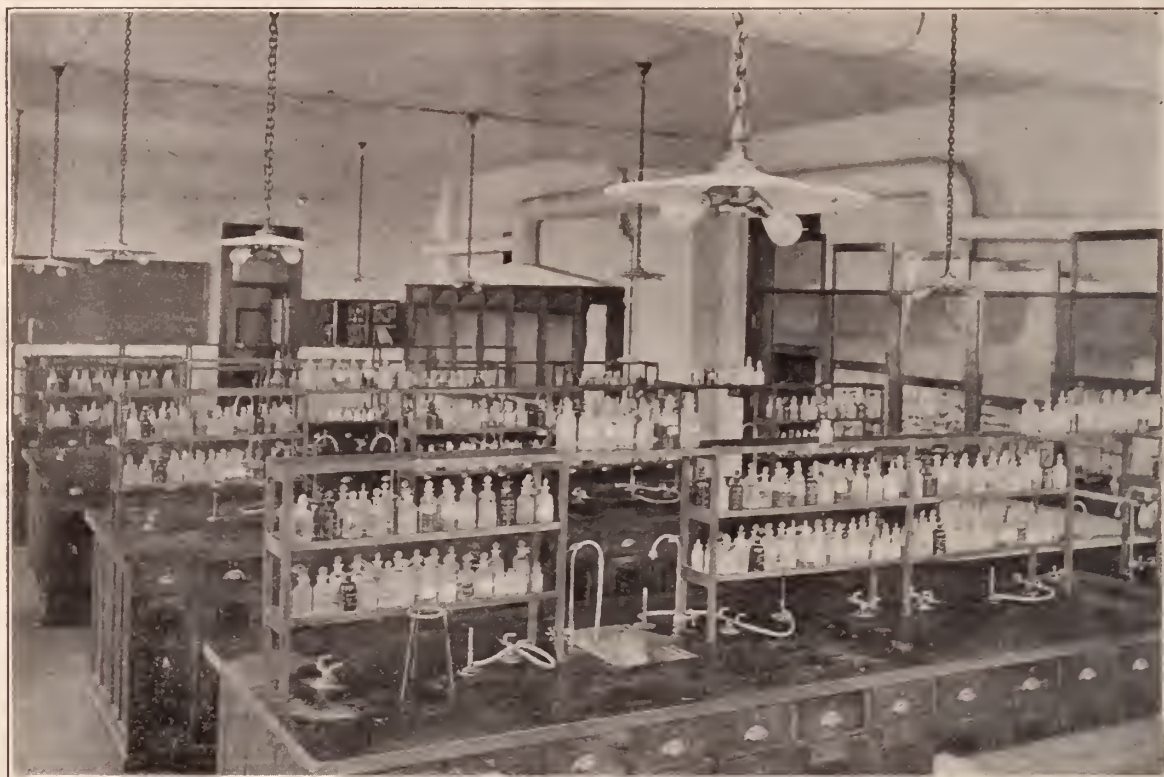
of medicine to go to large cities on account of the supposed scarcity of clinical material here, for the facilities for clinical teaching in Burlington are good and the amount of clinical material available is abundant.

REPORT OF CLINICAL TEACHING GIVEN DURING THE SESSION OF 1906-7.

It will be impracticable, in the space we have at our disposal, to attempt to include a complete classification of the clinical cases shown during the year, or to discuss these

were, then, one or more clinics of two hours each, every day during the session. At nearly all the clinics there was an abundance of clinical material and at many of them it was impossible to examine all the patients who presented themselves.

There were between four hundred and fifty and five hundred cases at the various clinics during the session, these necessarily covered a wide range of diseases and made it possible to study the varying conditions of the same disease as exhibited in different patients.



LABORATORY OF CHEMISTRY.

cases in detail. It will be interesting, and perhaps instructive, to group the cases from all the clinics in one report and to study them in a general way.

There were six clinics each week throughout the session, with the exception of the last five weeks when two of these were discontinued. All the clinics were two hour periods, excepting the surgical clinic on Saturday which was a three hour period. In addition to these there were six clinics on special subjects which continued for a number of weeks each. There

There were two clinics on general medicine each week throughout the session. At these clinics the members of the class made examinations of each case and such laboratory examinations as the case required. The class was divided into sections of two or three men and the sections were assigned to this work in regular rotation. All examinations were made under the supervision of the clinical assistant. The result of these examinations, together with the diagnosis, and treatment suggested, was discussed before the class.

The following is a partial list of the cases shown in the medical clinics:

Diseases of the respiratory organs and pleura. 28 cases.

Pulmonary tuberculosis	12
Chronic bronchitis	5
Acute bronchitis	2
Asthma	2
Emphysema	4
Pleurisy with effusion	1
Acute pleurisy	1
Chronic pleurisy with thickening.....	1

Diseases of the heart and circulatory system. 23 cases.

Mitral regurgitation	5
Aortic Stenosis with regurgitation	3
Mitral stenosis	1
Myocarditis	4
Arterio-Sclerosis	7
Endocarditis	1
Phlebitis (femoral)	1
Gangrene	1

Diseases of the stomach and intestines. 16 cases.

Catarrhal gastritis	8
Acute catarrhal colonitis	2
Gastric dilatation	3
Gastric ulcer	2
Cancer of stomach	1

Diseases of the kidneys and bladder 25 cases.

Interstitial nephritis	13
Movable kidney	3
Cystitis	4
Pyelitis	2
Diabetes mellitus	3

Diseases of the nervous system. 25 cases.

Neurasthenia	6
Trifacial neuralgia	2
Anterior poliomyelitis	2
Interstitial neuralgia	3
Lumbar neuralgia	3
Sacral neuralgia	1
Spinal paraplegia	1
Hysteria	3
Spastic hemiplegia	2
Tabes dorsalis	2

Unclassified cases 33 cases.

Acute articular rheumatism	4
Arthritis deformans	3
Exophthalmic goiter	1
Hyperplasia of the parotid	1
Idiopathic epilepsy	2
Secondary anemia	4
Menorrhagia	2
Dysmenorrhea	3
Vaginitis	3
Catarrhal pharyngitis	4
Chronic constipation	5
Spasmodic stricture of esophagus	1

Aside from these there were a large number of cases having minor functional disturbances.

The general and special surgical clinics were held three and four times each week. The surgical cases were examined by the class who made diagnoses and suggested treatment, the diagnoses being verified by the pathological examination of specimens removed.

The following is a partial list of the operations done during the session:

APPENDIX. There were 31 cases of appendicitis operated upon, of which 25 cases were non-suppurative and 6 were abscess cases. The split muscle operation was done in all the non-suppurative cases and the various methods of treating the stump were illustrated. The abscess cases were simply drained no effort being made to remove the appendix.

HERNIA. There were 12 cases of hernia operated upon, of these 9 were inguinal, 2 umbilical and 1 ventral. The Bassini operation was done on all the inguinal herniae.

GALL STONES. There were 2 cases of gall stones operated upon, in both these cases the gall bladder was stitched to the peritoneum and packed with gauze.

UTERUS AND APPENDAGES.

UTERINE FIBROIDS. There were 5 cases of uterine fibroid upon which abdominal hysterectomy was performed. There was also 1 case of small uterine fibroid with uterine prolapse on which a vaginal hysterectomy was performed.

EXTRA-UTERINE PREGNANCY. There was 1 case of this interesting condition operated upon before the class.

RETRO-DISPLACEMENTS OF THE UTERUS. There were 4 cases of retroversion which were corrected by ventro-suspension.

DISEASES OF THE TUBES AND OVARIES. There were 11 cases of ovarian disease operated upon, 7 of these were for prolapsed and cystic ovaries and 4 for ovarian cysts.

URINARY ORGANS. There were 13 cases operated upon for diseases of these organs. There were 4 cases of wandering kidney for which nephrectomy was done. There were 2 cases of enlarged prostate for which prostatectomy was performed, two cases of vesical calculus for which supra pubic cystotomy was performed. 2 cases of hydrocele the tunica of vaginalis being so diseased that it was dissected out, 2 cases of tubercular testicle on which excision was performed, and 1 case on which cystoscopy was done.

BREAST. There were 4 cases of excision of the breast, 2 for malignant disease, 1 for fibro adenoma, and 1 for tubercular infection.

FACE. There was 1 case of malignant disease of the antrum for which excision of the superior maxilla was done.

In addition to the operations already described the following list of operations which was not classified were done:

Talipes (various varieties)	10
Hallux Valgus	3
Spinal curvature	8
Hare lip	1
Laceration of cervix	5
Laceration of perineum	5
Laceration of perineum complete	3
Endometritis (Curettag)	5
Placenta Praevia	1
Amputation at shoulder joint	1
Amputation of leg	1
Un-united fracture of femur	1
Un-united fracture of patella	1
Fracture of thigh	1
Fracture of leg	2
Fracture of patella	1
Necrosis of lower jaw	2
Necrosis of ribs	2
Tubercular glands of neck	4

Disease of hip	2
Disease of spine	4
Tubercular disease of knee	2
Tubercular peritonitis	1
Median lithotomy for stricture.....	1
Suture of cut tendons	2
Cystic goiter	1
Pilonidal cyst	1
Epithelioma of the lip	1
Osteo sarcoma of finger	1
Cellulitis of fore arm	1
Gun shot wound	1
Charcot's joints	1
Laparotomy for post-operative adhesions..	1

Total.....162

Macula	2
Ulcer	3
IRIS. Iritis	2
LENS. After cataract	3
Cataract incipient	4
Cataract intumescent	8
Cataract mature or hypermature.....	5
OPTIC NERVE. Atrophy	1
MUSCLES. Divergent strabismus	2
Convergent strabismus	2
MISCELLANEOUS. Glaucoma chronic	1
Errors of refraction	7

There were 48 cases treated in the Nose,
Throat and Ear Clinics. There were 28



MARY FLETCHER HOSPITAL.

There were 57 cases treated in the Eye Clinics and operations were performed on such cases as required surgical treatment:

EYE.	
LIDS. Blepharitis marginalis	1
Chalazion	1
Atresia punctum	1
Dacryocystitis	1
CONJUNCTIVA. Conjunctivitis acute catarrhal..	1
Conjunctivitis chronic catarrhal	4
Conjunctivitis gonorrheal	1
Pterygium	2
CORNEA. Foreign body cornea	1
Keratitis phlyctenular	1
Keratitis interstitial	1
Leucoma	2

medical cases and 20 cases requiring surgical treatment. Affections of Nose, Throat and Ear.

NOSE. Deflected septum	3
Abscess frontal sinus	1
Epithelioma of maxillary antrum	1
Necrosis nasal septum	1
Polypus	3
Rhinitis atrophic	5
Rhinitis hypertrophic	5
PHARYNX. Adenoids	5
Pharyngitis chronic catarrhal	2
Hypertrophied tonsils	5
Ranula	1
Quinsy	2
Syphilis	1

LARYNX. Laryngitis chronic catarrhal	2
Laryngitis tubercular	1
EAR. Otitis media catarrhal chronic	1
Otitis media purulent	1
Otitis media purulent chronic	5
Aural polypi	1
Mastoid abscess	2

The following cases were treated in the clinics for Diseases of the Skin:

Total number of cases	44
Psoriasis	3
Eczema	6
Seborrhoicum Eczema	3
Lupis Vulgaris	1
Lupis Erythematosus	2
Acne Vulgaris	3
Rosacea	1
Urticaria	1
Senile pruritis	2
Syphilis	5
Drug rash	1
Pediculosis	2
Scabies	5
Tinea sycosis	1
Tinea Versicolor	1
Rodent Ulcer	1
Xanthoma	1
Keloid	2
Lipoma	1
Chloasma	1
Angio-neurotic edema	1

There were over 50 cases of Diseases of the Nervous System in the special clinics which were held by the professor of this subject. These cases covered a wide range of the diseases of which the following is a partial list:

Locomotor ataxia, Spastic paralysis, Hysterical Spastic Paraplegia, Anterior Poliomyelitis, Bulbar Paralysis, Ataxic Paralysis, Combined Sclerosis, Aphasia, Hemiplegia, Hydrocephalus, Multiple Neuritis, Neuralgia, Paralysis Agitans, Acute Chorea, Hereditary Chorea, Epilepsy, Hysteria, Neurasthenia, Raynaud's Disease and Acromegaly.

OBITUARIES.

DR. J. HENRY JACKSON.

By John B. Wheeler, M. D., Burlington, Vt.

J. Henry Jackson was born on the 19th of April, 1844, in Brome, P. Q. Before taking up the study of medicine, he was educated at Barre Academy, graduating in 1862. His professional education was obtained at the Medical Department of the University of Vermont, where he graduated in 1865. After graduating, he practiced for five years in Stockholm, N. Y. He then moved to Barre, Vt., where he practiced for the rest of his life.

He soon became a prominent figure in his profession. In 1880 he was President of the Vermont State Medical Society. In 1882 he

was made Professor of Physiology in the Medical Department of the University of Vermont. He occupied this chair as long as he lived. For several years he was consulting physician to the Mary Fletcher Hospital in Burlington. In 1882 the University of Vermont conferred upon him the honorary degree of Master of Arts. In 1890 he attended the International Medical Congress in Berlin as a delegate from the Vermont State Medical Society. He was one of the incorporators of the Barre City Hospital and was president of its board of directors when he died.



DR. J. HENRY JACKSON.

For many years Dr. Jackson was the leading physician of Barre. His large and lucrative practice, however, did not absorb all of his time and energy. In 1878-79 he represented Barre in the Legislature and in 1881 and 1882 he was superintendent of schools. He was a delegate to the democratic national convention in 1892 and was democratic candidate for governor in 1892 and 1896. In 1902 he was elected mayor of Barre. He was actively interested in business as well as in politics and was president of the Barre Savings Bank and

Trust Company and vice-president of the National Bank of Barre.

Religious and Masonic organizations also claimed a share of his interest. He was a deacon in the Congregational Church and held numerous high offices in the Masonic bodies of his city and State.

Dr. Jackson was twice married. His first wife was Anna Dutton Wells, of Brasher Falls, N. Y., by whom he had one son, Dr. Joseph W. Jackson of Barre. His second wife, Cora A. Wood, survives him with her two sons, Dr. Fred K. Jackson of Burlington and Henry Hollister Jackson, who is a senior in Yale University.

Dr. Jackson's death followed an attack of appendicitis which began on Sept. 8th. The appendix was removed Sept. 10th, in a condition of catarrhal inflammation. There was no abscess, but the whole right iliac fossa was full of dense adhesions (the result of a very severe attack which he had twenty-seven years ago, which made the operation a very long and exceedingly difficult one. He made an excellent recovery from the anesthetic, however, and for forty-eight hours everything progressed normally. In the afternoon of the 12th his pulse became rapid and feeble, his temperature began to rise, his mind became clouded and vomiting set in. These unfavorable symptoms continued and grew worse during the night, his strength rapidly failed and he died at five o'clock in the morning of the 13th.

Rarely indeed is a man found who excels in so many different directions as did Dr. Jackson. In the professional, political, business, social and religious life of his city, his position was a leading one. And his private life was as charming as his public life was successful. Although a man of so many outside interests, his heart was completely bound up in his family and a kinder and more devoted husband and father never lived. To his acquaintances, his manner was kindness itself. There can be few, if any members of the Vermont State Medical Society who have not felt his rare personal charm. And those of us who were fortunate enough to know him well and to be associated with him in any of the various enterprises in which he was interested, realize more deeply than can

be expressed the truth of the words spoken at his funeral:

"It was good to know him.

It was a privilege to be his friend."

Dr. Chas. F. Branch of Amherst, Mass., formerly of Newport, Vt., died Aug. 27 from nephritis. Dr. Branch was born in Orwell, Vt., in 1845. While he was fitting for college, the war broke out and he enlisted as a private, being promoted by successive steps to the grade of captain, and later breveted major for conspicuous conduct at the capture of Richmond. After the close of the war he began the study of medicine, and was graduated from the medical department of the University of Vermont in the class of 1879. He began practice at Coventry, Vt., and twelve years later moved to Newport. In 1896 he moved to Amherst, where he at once took an active part in medical and social matters. For several years he was surgeon to the 1st regiment, Vermont National Guards and was surgeon-general of Vermont in 1886-88, and in 1895 president of the Vermont State Medical Society. At Amherst, he was medical examiner for the district, chairman of the board of health, and for a number of years a councillor of the Massachusetts Medical Society.

Tenderness over the gall-bladder region, especially if accompanied by colicky pain, usually means a pathological condition of that organ. But an inflamed retrocecal appendix, extending high up, hydronephrosis, acute pancreatitis, and an inflammatory condition at the pyloric end of the stomach are also to be kept in mind.—*American Journal of Surgery*.

Physicians should caution their patients against the "hardening of children" practiced in many families in this day of over-vigorous physical development. Ample experience has shown that cold baths and bleak winds are positively injurious to young children. As a rule, the comfort of the child is a safe guide in the matter of dress and exposure, but it must not be assumed that, because the little one ceases his useless complaining, he is entirely comfortable when he is half-clad on a chilly day.—*Ill. State Bd. of Health Bulletin*.

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H. C. TINKHAM, M. D., }
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BURLINGTON, VT., SEPTEMBER 16, 1907.

EDITORIAL.

We are devoting this number to the University of Vermont College of Medicine, and the articles giving the history of the department with the names of some of the men who have been active in promoting its welfare, have been prepared by those who are in a position to know the facts and give reliable information in regard to the school. There are also articles giving a description of the new building, a detailed discussion of the curriculum and an account of the hospital, dispensary and clinical facilities, with a report of the clinics and clinical work done during the session of 1906-7. The record of the standing of the Medical graduates of the University before State Examining Boards, published in the Journal of the American Medical Association, make it possible to compare their standing with the graduates of other medical schools, which also gives the comparative standing of the schools. This will be both interesting and gratifying to the Alumni.

We have been impelled to make this a University of Vermont number by the belief that the physicians of the state, whether graduates of the University of Vermont College of Medicine or not, are interested in its welfare, and also by the belief that the alumni, wherever they may be, are especially interested in their Alma Mater and will be glad to know of her progress and her needs. We regret that space would not allow us to give a longer list of the men who have helped to make the school what it is and to tell something of their individual work. We trust the partial list given includes all the more active men, certainly none have been omitted purposely. It is our desire that this number may help the alumni to keep in touch with their Alma Mater and also that it may revive pleasant memories of their college days and awake in them a new interest in the future of medical education in Vermont.

There seems to be a more or less general opinion, both among the laity and physicians, that Medical Schools are a profitable enterprise and furnish the men who are connected with them a very substantial income. When all instruction was given by didactic lectures and seven men constituted the entire teaching force, when there were practically no incidental expenses beyond heating and lighting a lecture hall, and the amount received from the fees of students could practically all go for professors' salaries, it was possible for them to receive a fairly good income, but never an extravagant amount as some have supposed. Now many laboratory courses are required, which mean more room, expensive apparatus and instructors. Dividing the class into small sections for recitations and practical work, again calls for additional room and teachers. Expenses for heat, light, laboratory supplies, instruction, janitor and incidentals, have in-

creased enormously. The fees have not been increased in proportion to the increase in expenses, and it is probably out of the question ever to expect a sufficient income from student's fees to support a medical school. During the past few years this fact has been recognized by faculties of medical schools, who have urged the importance of securing endowments as the only relief, and many have already done so. There is no reason why an endowment cannot be secured for this school as well as for others, if every one works for it with a will. We sincerely hope that the friends of the University will not allow the Medical Department to suffer for the lack of an endowment.

BOOK REVIEWS.

PRACTICAL FEVER NURSING. By Edward C. Register, M. D., Professor of the Practice of Medicine in the North Carolina Medical College. Octavo volume of 352 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$2.50 net.

This is an admirable treatise on nursing all fibril conditions. It discusses fully and clearly the duties of the nurse in the sick room, records, interpretation of symptoms, and the special care of the different fibril conditions. It gives full directions for the use of cold as an antipyretic, and restoratives in collapse, also diet, disinfection, etc. It will be a most useful book both for the physician and the trained nurse.

THE PRACTITIONER'S LIBRARY OF GYNECOLOGY, OBSTETRICS, AND PEDIATRICS, in Original Contributions, by Eminent American and English Authors. The Practice of Gynecology—Edited by J. Wesley Bovée, A. M., M. D., Professor of Clinical Gynecology in the George Washington University, Washington, D. C. Large octavo, 836 pages, with 382 engravings and 60 full-page plates in colors and monochrome. The Practice of Obstetrics—Edited by Reuben Peterson, A. B., M. D., Professor of Obstetrics and Diseases of Women in the University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich. Large octavo, 1087 pages, with 523 engravings and 30 full-page plates in colors and monochrome. The Practice of Pediatrics—Edited by Walter Lester Carr, M. D., Consulting Physician to the French Hospital; Visiting Physician Infants' and Children's Hospital, New York. Large octavo,

1014 pages, with 199 engravings and 32 full-page plates in colors and monochrome. Price per single volume, Cloth, \$6.00; Leather, \$7.00; Half Morocco, \$8.00. Price for any two volumes, Cloth, \$11.00; Leather, \$13.00; Half Morocco, \$15.00. Price for the three volumes, Cloth, \$15.00; Leather, \$18.00; Half Morocco, \$21.00.

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AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

KIDNEY INSUFFICIENCY AND UREMIA.

O. T. OSBORNE, New Haven, Conn. (*Journal A. M. A.*, August 24), gives the physiologic data concerning the kidney secretion and the therapeutic deductions from the same in pathologic conditions. The insidious approach of chronic intestinal kidney disease and the warning symptoms of uremia are described, and he shows that our ability to diagnose the condition and foretell its outcome does not rest on the finding of albumin or casts in the urine. These may indicate only kidney irritation. With their continuous appearance the actual condition can only be determined by the associated symptoms, viz., diminished output of salts, a greatly diminished or greatly increased excretion of urine, the latter with a low specific gravity, indigestion, headache, circulatory disturbances and eye symptoms. When actual uremia threatens the liver as well as the kidneys should be the point of therapeutic attack by saline purgatives, baths, etc. The treatment of uremia is summed up as absolute muscle rest; the withholding of all food, not even giving milk; administering very little water by the mouth even if there is no edema, as the ability of the kidneys to excrete even water is often abolished; frequent colon injections of hot water, leaving some in the colon for absorption if the blood pressure is low and there is no edema; the administration of thyroid; hot sponging of the skin; venesection in most cases, repeated if necessary, as it has been shown that an ounce of blood will remove more toxins than eight or nine times as much of fluid feces or quarts of perspiration; and the administration of nitroglycerin if the pulse tension is high. When the uremic period is passed and the kidneys begin to act again, the diet and hygiene of the patient are of the utmost importance, but these details are not taken up in this paper.

PAINFUL HEEL.

In defining this condition, J. J. NUTT, New York City (*Journal A. M. A.*, January 19), says the term is not exactly descriptive or distinctive, as not all pain referred to the heel is due to the same condition. Young's definition, which is clear and exact, is "severe pain, accompanied by tenderness, in the center of the heel about the posterior attachment of the plantar fascia." It is probably not a rare condition, the milder cases are likely to be self-treated, and therefore do not come to the knowledge of the physician. Usually the only abnormality found on examination will be a limited range of flexion of the ankle; in other words, nondeforming club foot, or as he prefers to call it "Shaffer's disease" exists. He admits that other causes are possible;

exostosis, bursitis or neuroma may be the primary lesion, but he believes they are more often secondary to the traumatism to the plantar fascia. Nutt thinks that it is usually produced in those cases, in which the shortening of the gastrocnemius—the *sine qua non* in Shaffer's disease—exists to a slight extent, and that the plantar fascia, instead of becoming weakened and lengthening throughout its extent, has given way at the calcaneum attachment. This he does not find due to any sudden traumatism, but rather to the repeated slight strains of continuous stepping. The rational treatment is the relief of the strain on the shortened gastrocnemius by Shaffer's traction shoe with its steel arch, and by directions as to the proper method of walking.

THE PREPARATION OF THE SPECIALIST.

G. E. SHAMBAUGH, Chicago (*Journal A. M. A.*, August 17), criticises the postgraduate courses in the various specialties of medicine as now given as giving only a partial clinical training, and neglecting the fundamental sciences, a knowledge of which is even more essential in every medical specialty. For the most part, he says, not a word is heard in the postgraduate clinics of the fundamental subjects of anatomy, physiology, embryology, or pathology, in their special relations to the subjects studied by the would-be specialist. The development of the specialties has been so rapid that the demand for special training is a recent one, hence, in some measure, its defects. It can not be met by our undergraduate medical schools, whose object is to fit men for general practice, and while the postgraduate schools can furnish the clinical instruction, they lack the facilities for giving the right sort of work in the special anatomy, physiology, etc., which, as the foundation work, must form a large part of the actual training of the real specialist. To supply this we have to look to the universities and colleges that are provided with well-equipped laboratories, and the work should be put on the basis of genuine graduate work, leading to the granting by the university of a higher degree, that, let us say, of doctor of philosophy in medicine. Such a course and such a degree, even if granted by only one or two of the universities, would stimulate higher ideas and better preparation in physicians entering on the practice of specialties. It is, Shambaugh says, the duty of university medical schools to solve this problem by standardizing the work required in the preparation of the specialist. The need is not for more specialists, but for properly trained specialists.

SEWAGE PURIFICATION.

The relative merits of the usual methods of treating sewage are discussed G. T. MOORE, Washington, D. C. (*Journal A. M. A.*, August 24), who concludes that the septic tank, under ordinary conditions when there are no trade wastes calculated to retard bacterial action, is well suited to remove a considerable percentage of the suspended matter in sewage. It requires but a moderate space, can be cheaply run, but can not be considered a complete method of sewage disposal and needs to be followed by some process that will expose the effluent to further purifying action, to give a satisfactory result. The chemical method, he thinks, gives promise for the future, but how far its applicability extends remains to be seen. If a sterile as well as an oxidized effluent is demanded, it is not unlikely, he thinks, that the result can be obtained by combining a germicide with chemical precipitation methods as cheaply and

satisfactorily as by other means that would have to be employed. The local condition must largely govern the choice of method of sewage disposal, and no plan ought to be adopted until after careful and thorough investigation of all the conditions by competent experts. Many failures have been due to the lack of this, as well as to gross mismanagement or neglect.

TREATMENT OF HEADACHE.

BEVERLY ROBINSON, (*Monthly Cyclopaedia of Practical Medicine*, May, 1907), states that, to begin with, the etiology must always be considered and the cause banished, if good results are possible. Anæmia must be cured, gout or rheumatism specifically treated as far as may be, febrile conditions ameliorated, and then with proper time the patient recovers—it may be altogether, it may be only for a time. If an alcohol habit be marked, it should be gotten rid of, and tobacco excess moderated. Lead poisoning of certain trades, manifest malarial cachexia, insufficient renal elimination, with premonitory headache of uræmia, are all to be properly treated, or else headache continues. When syphilis is present and there is nocturnal headache with insomnia, iodides in increasing doses are our mainstay. Nasal obstruction, adenoids and hypertrophied tonsils must be removed. A sagging or retroverted uterus should be raised or replaced in normal position. Errors of menstruation must be corrected by general and, in minor degree, by local measures. But when we reach digestive disturbances, acute or chronic, we touch really the keynote of very many headaches. An error of diet, some special food, or merely a surfeit of too many foods, will give a headache, which five grains of blue mass, followed by a saline draught, will alone relieve effectually and rapidly. A neuropathic condition is shown to be the efficient cause of very many, indeed the greater number of miserable headaches. The most prevailing symptom accompanying the headache is disorderd digestion—dyspepsia, constipation, diarrhœa. Proper neutralization and elimination through the digestive tract can usually be of primary and greatest service. And here, particularly, we would lay great stress upon the sour milk diet and the moderate use, morning and night, of sulphate of soda.

When we come to relieve migraine, we can do little more or better. No treatment will surely prevent the return of the paroxysms, simply because we have here to do with a constitutional neurosis, in which heredity is the ruling power. A permanent and absolute cure is a difficult undertaking, and to be fair to our patients they should be informed of this fact. In most cases of sick headache the final and only appeal left us is, unfortunately, the hypodermatic administration of morphine.

TREATMENT OF HYSTERIA.

From a study of the subject of hysteria, the writer concludes that it consists of an instability or undue irritability of all the nervous and reflex centers throughout the body, and particularly those of the vasomotor and sympathetic systems. Hysterical paralysis or tremor and many other hysterical phenomena are produced by vascular change in the nervous system and elsewhere. The essential defect in the nervous system upon which the hysteria depends is inborn and inherent—that is to say, the reflex centers in hysterical subjects are throughout life more unstable than those of other people.

The general measures directed to the improvement of the nervous irritability may consist of rest, isolation from home surroundings, food, massage, electricity, hydrotherapy, and psychotherapy or hypnotism. Of all the various measures, rest is of the greatest value in allaying irritability of the nervous system. All sources of peripheral irritation must be removed. Complete rest of the body can be obtained only in bed. Abundance of sleep is essential, and it is sometimes justifiable to administer hypnotics. Removal from the conditions under which the disease arose is almost as indispensable as rest. It is often necessary not only to remove the patients from home, but to forbid any letters to be written or received.

As much easily assimilable food as the patient can take improves the nutrition of the nervous system and of the body generally. To increase the power of assimilation, such increase in the amount of food should be associated with massage. Massage also soothes the nervous system. As a rule, no drugs should be given, except an occasional aperient or dose of bromide for sleeplessness. Electricity is of considerable use, especially in those cases where a rigid rest-cure cannot be given. Static electricity is more useful than the galvanic and faradic forms. Hydrotherapy acts powerfully on the neurovascular system. Under psychotherapy may be included all kinds of persuasion, suggestion (auto-suggestion), and hypnotism. The object is to cultivate the will and control of the patient over her unruly emotions and unstable reflex centers. Ammonium bromide is the writer's sheet anchor for allaying the irritability of the reflex centers.

Apomorphine is the best remedy for the prompt cure of severe hysterical convulsions. The writer has also had a certain amount of success with vasoconstrictors (ergot), vasodilators (pilocarpine), and remedies acting on the blood (calcium salts) in cases where there is noticeable irregularity in the vasomotor regulator mechanism. Educational and other prophylactic measures are of great value. T. D. Savill (*Lancet*, June 22, 1907).

PEDIATRICS.

CARE AND MANAGEMENT OF THE WET NURSE.

In this country good wet nurses are not easily procured, and unskillful management may cause failure even when a good nurse has been found. In selecting the nurse it is naturally of the utmost importance to be sure that the mother and her baby are free from any tuberculous or syphilitic taint. A strong young woman of placid temper should be sought, and there should be made a careful and complete physical examination, first of the breast glands and nipples, to be sure that there is a good and obtainable supply of milk, and then of the lungs, pharynx, lymph nodes and skin, including vaginal inspection if there is any suspicion of syphilis.

Formerly great stress was laid upon the "age of the milk," meaning, rather, the age of the infant. This point is, however, of no great moment, since the composition of breast milk changes very little after the first month; and it is found by experience that infants of a month or two thrive satisfactorily when taking good breast milk several months older. Altogether, it is best to take a woman whose baby is at least six weeks old, or even older, for the reason that any signs of congenital syphilis will be apt to have appeared by that time, as they may not in infants younger. For this same reason, in no

case should a nurse be taken whose infant is under three weeks of age. Before or while examining the infant one should make sure, generally best by the way the nurse treats the baby, that it is really her own offspring, and not a baby borrowed for the examination.

Aside from the strictly medical aspects of the selection, there are other considerations. To avoid some of the complications of the situation—and particularly the sudden determination of the wet nurse to abandon her charge—one should if possible, engage a woman who has no entangling family ties, a woman as completely detached, so to speak, as possible. The husband or other children are apt to prove very disturbing factors, so that, for strictly nutritional purposes, a woman who has lost her husband and has no other children is to be preferred. The objection frequently raised against wet nurses that their milk may transmit undesirable moral qualities has, of course, no weight.

Again, the proper disposition of the infant, both for its own sake and for that of the foster child, is of great importance. No matter how lowly, or even degraded, her station, the wet nurse is almost invariably fond of her baby and is anxious that it should thrive. The parents of the foster infant should be made to feel that they are responsible for the care and health of the wet nurse's baby. Not only on the ground of common humanity should this responsibility be felt, but also for the sake of their own infant; for if the infant of the wet nurse is not thriving her milk is apt to become scanty or injurious because of her worry.

Often the wet nurse's baby can be cared for by relatives, or some good private home may be found; or, finally, though not as a rule desirable nor safe, the baby may be placed in an asylum or hospital. The main object is to be sure that the baby gets adequate care, judicious feeding and early medical attention if needed. It must be emphasized here that many of the so-called "good places" for wet nurses' babies are veritable baby farms, requiring for adequate description the pen of a Dickens or a Zola. The infants that thrive in these places do so in spite of ignorant attendants, overcrowding and lack of fresh air. Too often the life of the wet nurse's baby is actually and speedily sacrificed for that of the foster suckling.

In certain circumstances her baby should accompany the wet nurse if success is to be attained. If the foster infant is premature, congenitally feeble, or sickly and unable to nurse well, the wet nurse's baby is necessary in order to keep up the milk supply. Nothing makes a breast dry up more quickly than to have it inadequately nursed. Even pumping the breast, if it has to be continued for some time, produces the same result, notwithstanding massage and all the other means of promoting the breast secretion. It is a common experience to have a nurse with abundant milk lose her supply after a week or two of nursing by a feeble baby. In such cases, then, the wet nurse's baby should be wholly or partly nursed, and the milk can be pumped for the foster child if necessary.

Another circumstance in which the wet nurse's baby should accompany the mother is when no satisfactory home can be found for it. Then the baby can be fed artificially under the direction of the family physician.

As to the wet nurse herself, the aim is to keep her in good physical and mental condition, and the chief difficulties in her management are not medical, but domestic. It is most important to give her

enough to do in the way of work and exercise, and to avoid pampering her with too much or too rich food. A regular daily régime should be laid out prescribing a certain amount of housework (such as light washing, ironing, cleaning windows, making beds, etc.) and of outdoor exercise (such as a brisk walk, or wheeling the perambulator).

As to diet, the food given should be as nearly as possible in grade and amount like what the woman has been accustomed to in her station in life—merely avoiding articles that are clearly indigestible, or that will adversely affect the milk, and insisting upon a large amount of fluids in the form of milk, gruels, broths and purées. The diet should consist mainly of milk, purées, a moderate amount of meat and eggs, cereals, green vegetables, stewed fruits, simple puddings, stale bread, and gruel between meals and at night. Special diet for modifying the milk is rarely needed if the nurse is not overfed and has sufficient exercise. Beer may be necessary to keep the woman reasonably happy. Cornmeal gruel and malted foods or malt extracts increase the amount of milk. The great trouble with wet nurses is that they are apt to be overfed on unaccustomed or rich food, and to become fat and lazy, then domineering. Plenty of walking, housework and plain, well-cooked food exercise a wholesome moral influence, as well as have a good physical effect. Although there are many devoted and honorable wet nurses, there are also others who have little sense of honor, and whose cupidity prompts them to make the most they can in money out of a situation of which they are allowed to feel the mistress. The wet nurse frequently "runs the house," just as the baby has made everything secondary to itself. Firmness and tact, pity for the woman's ignorance and the determination not to be bullied, are needed to deal with many of the exasperating situations that arise.

One who has much experience with wet nurses often wishes that he might have less; and yet there are many cases of delicate infants for whom breast milk is a necessity, notwithstanding the great strides that have been made in successfully feeding infants artificially. A little more thought and kindly consideration for the wet nurse and her baby would at times bring about success in most unpromising conditions.—*Archives of Pediatrics*.

DERMATOLOGY.

IMPETIGO CONTAGIOSA.

NATHAN T. BEERS (*New York Medical Journal*, June 8) states that while no age is exempt, impetigo contagiosa is a disease of childhood, and although possible in any condition of health it usually occurs in the pale, poorly nourished little folks, whose resistance is lowered through lack of air and sunshine. Regarding seasons, late winter and early spring show the largest crops. The physician usually sees it in the stage of scab formation, but it is always discrete, never becoming confluent. It shows little tendency to itch and it is only when the scabs form that the child shows a tendency to disturb the lesions with the fingers or nails. The treatment is simple; a grain of calomel in broken doses, a saline to complete its action, and then some constitutional tonic to increase the general resistance. Externally the crusts are softened with olive oil, and removed with warm water and soap. The use then of an ointment of 10 grains of ammoniated mercury to the ounce, usually completes the cure.

DERMO-VENEREAL DON'TS.

Don't think that syphilitic eruptions never itch. They may in hairy parts, or accidental causes may produce pruritis.

Don't suppose that itching about the mons veneris is always symptomatic of pediculi pubis.

Don't depend upon internal treatment to cure all local syphilitic lesions.

Don't promise a permanent cure for psoriasis. It is certain to relapse at some time.

Don't call a herpes progenitalis an eczema. Examine it thoroughly.

Don't confine all your treatment of skin diseases to local measures exclusively.

Don't magnify the magnitude of a balanitis. One who has had it might give it its true worth.

Don't use irritating remedies on acute skin diseases, or vice versa.

Don't be a specialist until your patients force you to be one. And even then keep posted on general medicine and surgery.

Don't give your opinions—sell them, and the public will respect you more.

Don't talk when you can listen. Then, when you do talk, it is worth something.

Don't discourage syphilitics; but don't give them too much hope. Let them understand the gravity of the disease.

Don't deny that you give mercury in syphilis. Make your patients know that it is an absolute necessity in the proper treatment of their disease.

Don't give medicines in syphilis in doses that are irritating and not curative. Better let the disease cure itself.

Don't imagine that syphilis is a self-limited disease. This has been claimed by some, but they have never succeeded in proving it.

Don't mistake mosquito bites for measles. Look for the small scarlet point in the center.

Don't call an eruption of Wheals an urticaria when it is bed-bug bites. Examine the bed, if necessary.

Don't take a bee's or a hornet's sting for a boil. Pull the string and be persuaded.

Don't call every macular erythema a syphilitic roseola.

Don't frighten your syphilitic patients or they will desert you.

Don't criticise the treatment ordered by others. First do better and your patients will attend to criticisms.

Don't mistake the corona Veneris for a pustular acne.

Don't be afraid to tell the truth to a syphilitic; give him the name of his disease.—*American Journal of Dermatology*.

MATERICA MEDICA.

ACTION OF STRYCHNIN.

GEO. F. BUTLER, (*Merck's Archives*, June), summarizes the actions of those drugs used to increase nervous action, and states that in strychnin we possess an agent of unquestioned power as an exciter of nervous action, and that the spinal cord is affected by it more than the brain. The drug is very useful in conditions of degeneration of the spinal cord, especially when of an anemic character. While of great value in all forms of paralysis, it should not be given in these conditions until from four to six weeks after the attack and then should be administered in small doses (grain 1-200 to grain 1-134) and cautiously increased to full tolerance.

It is unquestionably the most valuable remedy we possess for all varieties of functional paralysis. Myelitis is often improved by strychnin after the failure of other remedies. In delirium tremens and in the treatment of chronic alcoholism strychnin nitrate alone or in conjunction with capsaicin is the best remedy we have. Of the various salts of strychnin the nitrate is preferable to any of the others in the treatment of alcoholism. The hypophosphite is better as a reconstructive tonic, and the arsenate when vital incitation is indicated. The valerianate is advised in restoring tone in conditions of hypochondria, neurasthenia, spermatorrhea, and for the consequences of mental overwork. Atropin is another valuable drug in certain conditions of inaction, in the early stages of emotional melancholia, when there is marked cerebral anemia, its effects are most marked. Hydrastin resembles strychnin, but its influence is more slowly developed and more lasting. It stimulates the respiration and circulation, imparting tone and power to the heart, and influencing blood stasis like ergot. When the mucosae are worn out by long-continued over-stimulation due to alcohol or condiments, it will do more than any other remedy to restore functional activity. The best effects of hydrastin are obtained by small doses long continued, from 1-67 to one-sixth grain, before each meal and at bedtime.

SURGERY.

OPERATION FOR SHORTENING THE BROAD LIGAMENTS.

A. E. HERTZLER, Kansas City, Mo. (*Journal A. M. A.*, January 26), describes anatomic characters of the broad ligaments, showing that they are not, as they are commonly described, formed of two layers of the peritoneum, as he understands the latter. The peritoneum covers all the intra-abdominal suspensory ligaments, but is nowhere identical with them, and this is particularly true of the broad ligaments, which are the strongest of all. He describes the broad ligaments as mainly made up of two strong fibrous bands, extending from the pelvic wall at the white line and just below it, to the uterine cornu and cervico-uterine junction respectively. These can be dissected out by vaginal incision, freed from the uterine artery, and ureter if desired, and drawn out from three to six centimeters, according to the degree of prolapse. In his later operations, a transverse incision is made in front of the cervix and the end of the ligament exposed by passing the finger between it and the vagina, thus getting below and behind it. It is then easy to follow it up as far as the uterine artery. With care the peritoneum can be lifted up without injury. If the uterine artery is tied, which can be done extraperitoneally if desired, it is not necessary to ligate the ligaments, but he usually severs them between two ligatures, one as close as possible to the cervix and the other a centimeter or less more lateralward. After free exposure of the ligaments they are overlapped as far as may be necessary to raise the cervix high enough. The method of overlapping is unimportant; an imitation of that used by Mayo, in umbilical hernia, is satisfactory and easily applied. Pyoktanin gut is used for all sutures: plain gut for ligatures. In case of high prolapse he adds to this operation either a Duessen fixation or a Freund-Wertheim. In patients of childbearing age, he has added a shortening of the round ligaments to hold the uterus up, which he does by making a Wertheim incision over the pubis and opening the abdomen after his method. The pelvic contents are

examined and given the needed treatment. The round ligaments are reached by retracting the lateral angles of the wound, thus exposing the external inguinal ring. The ligament is seized, subperitoneally, by a curved forceps passed into the abdomen along the inguinal canal, and it is dragged out into the external ring, the grasp within the abdomen being guided by the finger. By this method the peritoneum over the round ligament is not opened, there are no extraneous hands to give trouble and only pre-existing openings are utilized. If the uterus is fixed by adhesions, this operation should precede the shortening of the uterine ligaments, otherwise not. As a fact, a fixed uterus is usually not prolapsed, and does not call for shortening of the uterine ligaments. Hertzler's operative results have been satisfactory and he thinks his method, above given, is mechanically more correct than those usually employed. The article is illustrated.

GONORRHEA AS A FACTOR OF DEPOPULATION.

J. T. JOHNSON, Washington, D. C. (*Journal A. M. A.*, August 10), accepts the larger estimates of the frequency of gonorrhea in the male, calling it "the most frequent of adult diseases," and attributes to it largely the decreasing birth rate. Statistics show, he claims, that men are responsible for from between 78 and 70 per cent. of the sterility of the world, the cause being bilateral gonorrheal epididymitis, and are also responsible for a large part of the involuntary sterility of the female. The often quoted estimate of half the abdominal operations in the world being due to gonorrheal infection, falls far short, he thinks, of the actual facts. Its influence as a depopulator is shown not only in causing these mutilating and unsexing operations, but also by the production of what is known as "one child sterility," and in the recognition of its activity as a causer of abortions and premature deliveries far more often than was formerly supposed. It is also an important factor in the production of extrauterine pregnancy, and we have the authority of Jacobi and Currier that the "vulvovaginitis of little girls," which is generally of gonorrheal origin, is responsible for the frequent retardation and even prevention of the development of the female reproductive organs. The effect in adult life is to render them sufferers from amenorrhea and dysmenorrhea and practically sterile. It is a frequent and troublesome institutional disease, originating in gonorrheal infection, but spreading in other ways, of course, than by sexual connection. Johnson says that gonorrhea may be considered to have fairly earned the title of the "chief moral and physical pest of our age," and, in contradistinction to tuberculosis, might be called "the great black plague."

THE ROENTGEN RAYS AND MALIGNANT DISEASE.

E. G. WILLIAMS, Richmond, Va. (*Journal A. M. A.*, January 26), thinks that we are still only in the pioneer stage in the discovery of the possibilities of the Roentgen rays in the treatment of disease. The variation in results reported should be no discouragement. We have to consider the variability of the various factors in the production of the ray, in its method of application, in the penetration and effective energy of the rays from different sources and the different nature and locations of the growths treated. The lack of a unit or standard to use in applying the ray is another difficulty which he has met approximately by the use of the electric units of current in

the tube circuit. To a certain extent also the physiologic efficiency of the ray is proportional to the energy given off from the tube, but it depends more on the degree than on the total quantity, on the principal that one strong blow is more effective than a series of lighter ones, though the total amount of energy may be the same. This seems to him to be true, notwithstanding the fact that the action of the ray is to a large extent cumulative, i. e., the effect of one treatment persists over many days and subsequent exposures during this time are superadded. The physiologic efficiency is estimated by observation and study of the tissues exposed. The rays seem to have no effect on dead organized matter, and if we knew the nature of the difference between the living and the dead we could probably explain the action of the rays. Williams suggests the possibility of a close relation between the vibration period of the rays and that of atomic or subatomic activities that constitute the vital principle in protoplasm. It is the cells, and these in proportion as they exhibit the manifestations of life, that are principally acted on by the rays, and this explains the selective action on malignant growths, especially carcinomas, that have the largest proportion of vitally active cells. In the treatment of tumors, therefore, the result depends on their constituent cell tissues and their accessibility to the proper quality of radiant energy. Hence the adaptability of the rays for superficial malignant growths, while for deeper ones excision is indicated, followed, of course, by sufficient exposures to the rays to destroy malignant cells that may be left. Excision should also be practiced, in his opinion, with cancer of the lips or of any mucous membrane, as he has found such for some reason especially resistant to the rays.

A CONTEMPTIBLE FRAUD.

The promotor of mining ventures, who succeeds by the lavish use of printer's ink in duping large numbers of "easy marks" into giving up their savings for handsomely gilded stock certificates, is looked upon by all reputable business people with contempt.

Still more despicable a class of swindlers are bank officials who prove false to the trust reposed in them by widows, orphans, administrators, etc., and engage in wild-cat speculations with institution funds.

From these grades of systematic villainy there are various descending degrees which do not require enumeration. It seems, however, that a new "low-water mark" has recently been reached.

The pure food inspectors have been investigating cheap soda-water fountains in certain sections of Philadelphia, and find a most disgusting state of affairs. At one stand nine children paid their penny apiece for a drink of alleged soda water, and seven out of the nine drank out of the same glass without washing. A little investigation proved that the lemonade on sale at the same place was water, coloring and saccharine. Rootbeer that was offered at another place was composed of tar dye, benzoic acid, and water.

An investigator who indicated his intention of going into the business received some confidential information as follows:—

"If you want to go into the business I will sell you at the rate of four dozen bottles of assorted drinks for 75 cents. You don't get less, when you sell by the drink, than 10 cents a bottle. This gives you \$4.80 for every four dozen sold, at net profit of \$4.05 on your original investment. The average sale is from 20 to 30 dozen a day, but if you only sold 20

dozen, your profit would be \$21. Of course," he added apologetically, "I am talking about my best grades; but I can make you up goods on which you can make twice that money, and your patrons will be just as well pleased. I know, for I've tried it."

The above quotation from the *Philadelphia Record* indicates what physicians, who are willing to spend their energies in the service of the poor of the slums, are combating against. These vermin who fatten on the very vitality of the young children incapable of appreciating the quality of what they drink, except that it is sweet and cold, and that they are thirsty, should be rooted out and shown up for what they are, with such incidental punishment as the law permits to be meted out to them.—*Monthly Encyclopedia*.

SOCIETY MATTERS.

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SECRETARIES OF COUNTY SOCIETIES.

Addison—Geo. F. W. Willard, Vergennes.

Bennington—L. H. Ross, Bennington.

Caledonia—W. J. Aldrich, St. Johnsbury.

Chittenden—L. P. Sprague, Burlington.

Franklin—E. P. Lunderville, Richford.

Lamoille—S. G. Start, Cambridge.

Orleans—H. E. Somers, Derby.

Rutland—C. F. Ball, Rutland.

Washington—O. G. Stickney, Barre.

Windham—H. L. Waterman, Brattleboro.

Windsor—M. P. Stanley, White River Junction.

ANNUAL MEETING NEXT MONTH.

As the time for our Annual Meeting approaches I wish to urge upon the members of our society the desirability of making a strong effort to attend. This is conceded by all to be an era of organizations and combinations and the medical fraternity derive no less benefit by all uniting and forming one strong, energetic Society which will be not only of help to themselves but of benefit to the public. But no society or organization can achieve good results unless the members thereof attend the meetings and take part. The stimulus that a member derives from listening to the different papers and taking part in the discussion well pays him for all the expense and time involved.

This year we are to be honored by having with us the President of the American Medical Association, Dr. Herbert L. Burrell of Boston and Prof. J. M. Gile of Dartmouth Medical College.

The social side of a two, or three days medical meeting is not to be lost sight of. It does a medical man good to leave for a season all the ills and ails with which the human family is afflicted and to rub up against his fellow practitioners. He will be better enabled to do better work by attendance at such a meeting.

The local Committee of Arrangements have made adequate provision for the entertainment and comfort of all guests.

I urge upon you a full attendance.

GEO. H. GORHAM.

THE NINETY-FOURTH ANNUAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY WILL BE HELD AT ST. JOHNSBURY ON THE 10th AND 11th OF OCTOBER.

PROGRAM OF PROCEEDINGS.

FIRST DAY.

Thursday Morning, 9.00 o'clock.

1. Called to order by the President, D. C. Hawley, Burlington.
2. Prayer by the Chaplain, Rev. S. G. Barnes, D. D., St. Johnsbury.
3. Address of Welcome, A. F. Stone, St. Johnsbury.
4. Reading of the Records by the Secretary.
5. Report of the Committee of Arrangements, J. M. Allen, Chairman.
6. Reports of Officers and Delegates:
Secretary, Geo. H. Gorham.
Treasurer, B. H. Stone.
Necrology, M. H. Eddy.
Legislation, F. T. Kidder.
Delegates to the Medical Colleges and the different Medical Societies.
7. Typhoid Fever, H. L. Townsend, Bridport.
Discussion opened by F. C. Liddle, Dorset, B. D. George, Hardwick.
8. Auto-intoxication, H. C. Jackson, Woodstock.
Discussion opened by David Marvin, Essex Jct., H. S. Carver, Marshfield.
9. The Practice of Medicine as a Business, J. F. Blanchard, Newport.
Discussion opened by A. B. Bisbee, Montpelier, C. B. Ross, W. Rutland.
10. Cystoscope and Catherization of the Ureters as an Aid in Diagnosis and Treatment, A. L. Miner, Bellows Falls.
Discussion opened by Lyman Allen, Burlington.
F. H. O'Conner, Brattleboro.

Thursday Afternoon, 2.00 o'clock.

1. Introduction of Delegates from other Societies.
2. Vice-President's Address, The Prevalency of Uterine Cancer in Vermont, C. W. Strobell, Rutland.
Discussion opened by S. W. Maynard, Burlington, B. D. Longe, Newport.

ACETOZONE IN Typhoid Fever

NINETY-ONE CASES WITHOUT A DEATH.

In the *Journal of the Missouri State Medical Association*, May, 1907, William H. Hays, M. D., Hannibal, Mo., writes of his treatment of ninety-one cases of typhoid fever, covering a period of four years (1903-1906), without a death and with but two relapses.

"Acetozone, as an internal antiseptic," says Dr. Hays, "is superior to anything else I have ever employed. I have noticed an immediate effect upon all the symptoms shortly after the institution of its use. The odor of the stools and of the sick-room is markedly improved, so much so as to cause comment. Convalescence of the patients has been rapid. In fact, it has been difficult to convince some of them that they were ill after the second or third week. I have had no serious trouble from tympanites nor have I been much embarrassed by delirium."

[NOTE.—This report of Dr. Hays has been reprinted in pamphlet form. We shall be pleased to send a copy of it to any physician upon request.]

A CETOZONE solution is one of the most potent antiseptics available for internal use. Laboratory experiments show that it possesses greater germicidal activity than mercuric chloride (corrosive) under exactly the same conditions. For administration in typhoid fever it is best prepared after this formula:

Acetozone, 15 grains; warm water, 32 fluidounces.

The mixture should be shaken vigorously and allowed to stand two hours, the stock bottle to be kept in a refrigerator or other cool place and the liquid decanted off as required. For flavor, if desired, a few drops of orange or lemon juice may be added to each dose *as taken*. The solution replaces water and all other liquids, and the patient should be urged to drink *ad libitum*.

Acetozone is supplied in ounce, half-ounce and quarter-ounce bottles; also in vials of 15 grains, six vials in a box.

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3. Home Treatment of Tuberculosis, H. H. Lee, Wells River.

Discussion opened by W. L. Havens, Chester Depot, Geo. F. B. Willard, Vergennes.

4. Address, The Control of Surgical Infection of the Extremities, Prof. H. L. Burrell, Boston, President-elect of the American Medical Association.

Discussion opened by E. M. Pond, Rutland, C. E. Chandler, Montpelier.

5. The Relations of the Profession to Public Health, H. D. Holton, Brattleboro.

Discussion opened by R. N. Pelton, Richford, T. R. Stiles, St. Johnsbury.

Regular meeting of the House of Delegates at Court House at 5.00 o'clock.

Thursday Evening, 8.15 o'clock.

President's Annual Address, Surgery of the Rectum, D. C. Hawley, Burlington.

Discussion opened by J. M. Allen, St. Johnsbury, H. H. Swift, Pittsford.

The annual banquet will be held at Pythian Hall at 9.30, immediately after the evening session.

J. N. JENNE, Anniversary Chairman.

SECOND DAY.

Friday Morning, 9.00 o'clock.

1. Report from House of Delegates.

2. Puerperal Sepsis, J. C. Breitling, Lunenburg.

Discussion opened by P. E. McSweeney, Burlington, A. I. Miller, Brattleboro.

3. Some Difficult Diagnosis Between Medical and Surgical Conditions, Prof. J. M. Gile, Hanover, N. H.

Discussion opened by M. R. Crain, Rutland, Geo. C. Berkley, St. Albans.

4. Pregnancy Vomiting, J. Reynolds Patton, Fairfield.

Discussion opened by W. J. Aldrich, St. Johnsbury, J. D. Hanrahan, Rutland.

5. Causes of Death, C. F. Dalton, Burlington.

Discussion opened by J. W. Jackson, Barre, H. E. Somers, Derby.

ADJOURNMENT.

ENTERTAINMENT.

Thursday Afternoon.

Automobile and carriage drives around town for the ladies, leaving from headquarters at the Avenue House at 2.00 o'clock.

Thursday Evening.

A reception for members, ladies and guests will be held in the Fairbanks Museum from 7.00 to 8.00 o'clock.

The annual banquet will be held in Pythian Hall at 9.30. Ladies and guests are cordially invited.

Friday Afternoon.

Through the courtesy of manager H. N. Turner of the Fairbanks Scale Company a cordial invitation is extended to members, ladies and guests to visit this most interesting factory at 1.30 o'clock. The trip through the factory will be made in small parties with guides.

ANNOUNCEMENTS.

PAPERS.

Papers are limited to twenty minutes. Discussion of same by any member to five minutes.

Papers must be typewritten and handed to the Secretary *immediately* after reading, for publication in the Transactions.

RAILROADS.

Round trip tickets at Convention rates will be on sale at all the principal stations on the Boston & Maine, Montpelier & Wells River, Central Vermont, St. Johnsbury & Lake Champlain, and Rutland Railroads.

EXHIBITS.

The customary exhibits of Drugs, Foods, Medical Books, and Surgical Instruments, will be displayed in rooms immediately adjoining the room in the Court House where the regular sessions are held.

HEADQUARTERS.

The headquarters of the Society will be at the Avenue House where under the new management of Mr. Geo. N. Goode everything possible will be done for the comfort of visitors.

PLACE OF MEETING.

The sessions of the Society will be held in the court room of the Caledonia County Court House, Main Street. Take Eastern Avenue Cars.

REGISTRATION.


All members and visitors are requested to register their names on entering the hall.

LEUCOPENIA IN TYPHOID.

GENNARI has examined the blood in 106 cases of typhoid, with the object of seeing how far leucopenia (diminution of the leucocytes below 5000 per mm.) was prevalent in typhoid, especially in the early stages. Of the 106 cases 66 were in the early stage—that is, from the second to the sixth day of the disease. Of these 66, 47 showed leucopenia, whilst only 23 of these gave the Widal secretion at this stage. None of these cases presented an increase in the number of leucocytes. From this experience the author concludes that, in the early stage of typhoid, leucopenia if present is a valuable aid to diagnosis, and all the more so because at the beginning the Widal reaction is often negative. Of the 30 cases examined after the sixth day, and all giving a positive Widal reaction, 23 showed leucopenia. In one case of chlorosis, which contracted typhoid whilst in hospital, the leucocytes were 6000 per mm. before the fever set in and fell to 4600 on the second day of the enteric. Leucopenia may be met with in military tuberculosis, but it is rarer in these cases. If any complications occur in the course of the typhoid a comparative leucocytosis may occur, but apart from that leucopenia or a normal leucocyte count is the rule. Leucopenia seems more often present in bad cases. For example, out of 26 severe cases 24 showed leucopenia, whereas in 35 light cases it was only present in 13.

THERAPEUTIC NOTES.

WATER SUPPLY AND PUBLIC HEALTH.—In this installment of the special article on Water Supply and Public Health, E. O. JORDAN, in the *Journal A. M. A.*, June 1, takes up the bacterial examination of water. The earlier expectations as to the sufficiency of this method have not been fully realized, and it is now manifest that the bacteriologist, like the chemist, must form his judgment as to the sanitary character of the water from indirect evidence and by inference, rather than from the positive demonstration of the presence of pathogenic microbes. The first developed method of bacterial examination was the quantitative one. In its simplest form it consisted in the enumeration of colonies of bacteria developing on plates of nutrient gelatin to which measured quantities of the water were added. It was found, however, that the changes taking place during the transportation of a sample of water from the place of collection to the laboratory were often sufficient to vitiate the results of the colony count, and that having recourse to freezing the samples to meet this objection had a bad effect on the accuracy of the test. The best modern practice, therefore, requires the quantitative count to be made within an hour or less after taking the sample from its source, and, if transportation to a distance is unavoidable, the making of control platings at the point of collection as frequently as possible. Other modifications have also been introduced, but the quantitative test, while at times it has considerable sanitary significance, has, like the chemical test, only an empirical value. More success has attended the attempt to connect the presence of abundance of certain species of bacteria with the quality of the water, and the one most significant, according to the general consensus of opinion, is the colon bacillus. Its close biologic resemblance to the typhoid germ and the fact that, like it, it finds its way into sewage from excreta, render its presence particularly significant. Theobald Smith's method of testing for this organism is described as the one usually employed. Other germs, such as the streptococcus, have been suggested as tests, but it is thought hardly probable that they will supplant the colon test. The natural purification of polluted waters forms the subject of Chapter VI. That some purification must take place is evident, otherwise matters would be much worse than they are in thickly populated communities. The extent and rapidity of this process have been, however, the subject of much dispute, and the data are insufficient and in some respects conflicting. The sanitary problem is, how far below a source of sewage pollution is it safe to use the water of a stream, and it is complicated by the fact that it is rarely possible to exclude intermediate sources of contamination. Epidemiologic data are rare, it is in only a few cases that river-born typhoid can be traced directly to urban pollution, and it is generally necessary to fall back on chemical and bacterial data. The chemical changes that take place in sewage polluted water are of considerable interest and importance. After a certain time the unstable organic nitrogen of a polluted river becomes oxidized into stable nitrate, and, unless fresh organic matter is introduced or formed by algal growth, it is chemically purified and the chances of its containing living sewage bacteria are correspondingly lessened. The bacterial evidence is similar and possibly more direct. In the Illinois river the colon bacilli disappear almost completely in a flow of 150 miles. One established instance of the self purification of a stream, however, is cited. The



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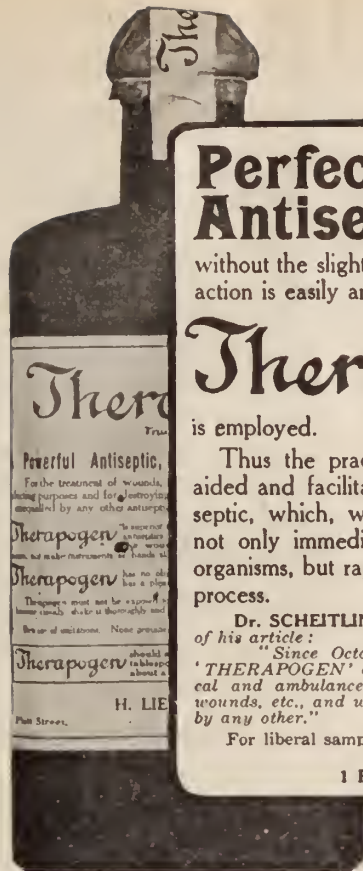
Mississippi, with all the tremendous pollution it must receive from the many cities on its banks, is unusually pure and wholesome at New Orleans. During the lower course above the city it receives but little contamination, and there are probably few cases where the occurrence of natural purification is so clearly demonstrated.

A SUGGESTION.—The new Glyco-Thymoline Eye Bath, which is constructed from a single piece of aluminum, has been found of exceptional service when used as a vessel to heat hypodermic solutions to the proper temperature. This little hint comes from a physician who has frequently found himself wanting just such a device. The Glyco-Thymoline people will be glad to send you one of these cups if you desire it.

FAR SUPERIOR TO CHLOROFORM.—The Hyoscine-Morphine-Cactin Anesthetic (Abbott) has been entirely satisfactory. In obstetrics it is far superior to chloroform. No nausea, shock or disagreeable symptoms with the mother. The child is born cyanotic but comes round all right. Our county medical society has taken up the matter; all reports have been very favorable. I think it will have a national bearing in the increase of population, as women will cease to dread the pangs of child-bearing, and will increase the number of children born. The nation will owe you a debt of gratitude.—J. S. Dickenson, Trenton, Ky.

THE SCHOOL-ROOM AS A FACTOR IN DISEASES OF YOUNG GIRLS.—The worry and excitement attendant upon present day school life is, undoubtedly, the prime cause of a governing percentage of the neurotic disturbances which are so prevalent among the women of America. In fact, it is quite within the bounds of truth to assert that many of the diseases which present themselves to the gynecologist have for their origin a nervous system rendered bankrupt by strife in our temples of education. Mental overstrain, when enforced day after day, soon renders the nerve structure incapable of absorbing adequate nourishment from the blood stream. Ultimately, nervous vitality is almost completely exhausted and depression, gloom, languor and mental impotence ensue. As the taxation is extended, the condition grows

worse until anemia, anorexia, insomnia, melancholia, and, perhaps, hysteria develop. Inasmuch as it is not within the power of the physician to remedy this evil system of handling our young women, it remains for him to evolve means of attenuating, as far as possible, the injury done, and preventing the development of lasting diseases which have their origin in the shattered nervous system. This is best accomplished by the upbuilding of the psychical and physical resources of the individual. Not by the employment of stimulants which act ephemeral upon the organism, but by encouraging functional activity to its maximum degree consistent of course with normality. Obviously, this must be done by maintaining the entire digestive system at its proper standard, for it is through these channels that vital force is obtained and the well being of the economy is preserved. It is here that iron is of the greatest therapeutic use. Not only does it impart to the blood stream a full measure of nutrition-conveyors in the form of hemoglobin, but it substantially increases the capacity of the tissues to absorb and utilize the nourishment placed at their disposal by the circulatory system. Further, iron, when administered in the proper form, augments functional activity throughout the entire digestive apparatus, and, thuswise, enables the economy to secure the full benefit of the food supply. To this action of the drug is due the greatest profit to the individual resulting from its use. The objections applicable to some forms of iron gain added importance in this particular class of cases, for the reason that the peculiarities of the disorders under consideration are such as to be greatly aggravated by an improper form of iron. Chief among these peculiarities is constipation, which is invariably a disturbing factor. The existing constipation is easily made worse by both the carbonate and acid solutions of iron; and, in fact, these forms of the drug are notably stool-discouraging. Digestive processes are also depressed by these forms of iron, and headache frequently follows their use. Partly because of these objections, but mainly on account of its manifold advantages, Pepto-Mangan (Gude) is given the preference over all other forms of iron, and a mass of clinical data has been brought forth to sustain this opinion. Pepto-Mangan (Gude) is of the greatest aid in the treatment of all the ill-defined disorders commonly encountered among school-girls who exhibit a tendency to anemia, nervous debility, anorexia, moroseness and mental depression. Obviously, this general emphatic endorsement of Pepto-Mangan



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USE OF ADRENALIN DURING ETHER ANESTHESIA.—Recognizing that my experience in the use of Adrenalin during ether anesthesia is but very limited, covering a course of only eighteen cases, and knowing the many fallacies attendant upon too early conclusions, I feel a great hesitancy in making this report. However, owing to the uniform result that has attended its use, I am prompted to do so now. I found that 25 per cent. aqueous solution of the standard 1 in 1000 gave the best results, and that by first pouring ether in the towel cone and spraying the Adrenalin solution on it, depending on the ether to vaporize it sufficiently for inhalation, was the best mode of administration. Three to six minute intervals are sufficient for its use and a total of from one-half to one ounce of this solution is enough for an operation lasting from thirty minutes to an hour. The effects are a more uniform etherization, the pulse becoming steadier, slower and of better character, more rapidly than under ether alone; respirations are quiet and regular, the bronchial secretions are practically checked, and the progress of the operation is not interrupted. These cases were not selected, and among them were old alcoholics; two women over sixty, one of them nearly eighty years of age. Three were very long, tedious operations, lasting over two hours, and in none of the series was any stimulation required during the anesthesia. Recovery from the anesthetic was uniformly good; there was practically no post-operative shock,

and no stimulation was needed in any one of the cases; only two patients vomited at all and very little nausea was complained of. From the foregoing facts I conclude that owing to the contraction of the smaller vessels the bronchial glands secrete less mucus, and there is better aeration in the bronchioles and pulmonary vesicles, less ether is required to produce anesthesia and there is less probability of ether pneumonia following. The Adrenalin, acting generally from absorption, is a powerful stimulant; it materially lessens shock, lessens the capillary ooze at the field of operation, and is of great benefit to the much weakened patient.—C. S. Venable, M. D., Charlottesville, Va.

To prevent the development of strictures of the esophagus after the swallowing of caustic substances, regular introduction of bougies should be resorted to at the end of a few weeks after the occurrence of the accident.

International Journal of Surgery.

In children suspected of having a foreign body in the larynx it will be generally found necessary to anesthetize the patient before a satisfactory laryngoscopic examination can be made, although in the presence of severe dyspnea no time should be lost in performing tracheotomy.

International Journal of Surgery.

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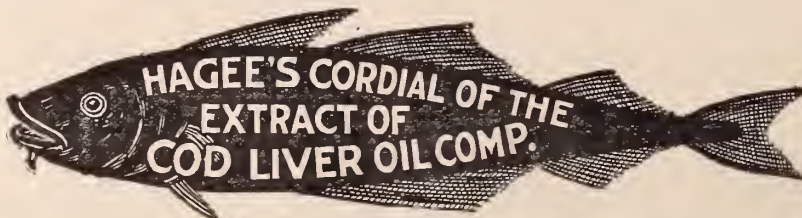
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ORIGINAL ARTICLES.

SURGERY OF THE RECTUM.*

By Donly C. Hawley, A. B., M. D., Burlington, Vermont.

Diagnosis of disease of the rectum is made as easily and correctly as of other regions of the body provided the examiner has had a reasonable training and experience in this particular line of disease, and exercises the same care and skill as is common in diagnosing disease in general.

Correct diagnosis of rectal diseases is perhaps the exception rather than the rule with the average medical practitioner.

If you will permit me I will quote from a paper presented to this society in 1896 on "Diseases of the Rectum" as follows: "By the rank and file of the profession work in this department has been carelessly and unskillfully done. Too many of us have been diagnosing every rectal ailment as piles, without an examination, and prescribing a salve therefor, which in nineteen out of every twenty cases has been useless, to the disgust of the patient and our own discredit." Again, "Serious rectum diseases have often been overlooked and neglected through a sense of false modesty on the part of the patient."

These statements are, I believe, true at the present time, although admittedly a knowledge of diseases of the rectum is of as much importance to the general medical practitioner as is a knowledge of diseases of the eye, nose or throat.

What is the cause and the remedy? The fault lies primarily with our medical schools in not recognizing the great importance of a thorough knowledge of rectal diseases and as a result in not giving proper instruction and providing sufficient clinical advantages in this branch of surgery. The remedy is not far to seek. Proctology should be placed upon the same level as other special branches in medicine and surgery, and regular and thorough instruction should be provided. In this way the young

physician would begin practice with reasonable knowledge of a now much neglected subject and with an experience which would enable him to treat intelligently a majority at least of the rectal cases which always constitute so large a percentage of the ailments of mankind.

In no class of cases is a positive and early diagnosis of greater importance to the patient than in rectal diseases, because in a large majority of benign cases an early and correct diagnosis and proper treatment mean a rapid cure, while an haphazard diagnosis and procrastination may allow a simple condition to become extremely serious and perhaps end disastrously to the patient.

Further it is only in the very early stages of malignant rectal disease that surgical interference promises hope of eradication.

In making a diagnosis of rectal diseases, subjective symptoms are of importance but taken alone are apt to be misleading. A thorough and systematic local examination should always be made, as guess work is here entirely out of place. Such an examination by one sufficiently experienced to be able to properly interpret the conditions found, will usually result in a correct diagnosis.

Again, diagnosis of rectal diseases is not only in the majority of cases easy and certain but may oftenest be made without the painful use of instruments and with little discomfort to the patient.

Examination may be made with the patient in the left lateral or Sims position, the knee-elbow position, or the exaggerated lithotomy position, when with the buttocks well separated fissures, fistulae, protruding hemorrhoids or prolapsus may be readily seen and abscesses may be both seen and palpated.

Digital examination should be made with care and gentleness and will reveal the presence of polypi, tumors, painful areas and ulcerations, as well as the presence of bloody or other discharges. Internal piles cannot be made out by digital examination unless there is present connective tissue hypertrophy. The lower two inches of the rectum may be further examined by the aid of the speculum, preferably a bivalve or a Sims, while the upper portion and the sigmoid may be thoroughly examined by the aid of the proctoscope or sigmoidoscope. In

*President's address delivered before the Vermont State Medical Society at St. Johnsbury, October 10, 1907.

using these instruments gentleness again is the rule,—force must never be used.

For proctoscopic examination the knee-elbow position is perhaps the best in the majority of cases, while the exaggerated lithotomy position at times offers advantages. The sigmoid and the ascending colon may in case of emergency be examined by the introduction of the hand into the rectum. Such examination is not devoid of danger and is warranted only in exceptional cases. For all rectal examinations tight clothing and bands should be removed and the rectum should be empty.

A brief review of some of the more important details of anatomic structure, and of the divisions of the lower bowel may not be out of place.

The anus extends from the margin of the true skin to the dentate border of the crypts of Morgagni or semi-lunar valves, and is two-thirds to one inch in length.

The rectum comprises that part of the large bowel between the ano-rectal line and the mesenteric attachment opposite the third sacral vertebra and varies in length from four to six inches.

This division makes the rectum two or three inches shorter than in the older descriptions and is adopted by most modern authorities.

"It gives to the organ definite limits; it separates the mobile from the immobile portion of the gut; it marks the line where the course of the blood supply changes; it indicates the point where the three longitudinal muscular bands of the colon spread out and become more or less equally distributed around the gut; and finally it marks a point at which there is always a decided narrowing in caliber, indicating the juncture of the rectum with the pelvic colon."*

The rectum is divided into a lower and upper portion, the former being one and one-half or two inches in length and extending from the anus to the tip of the coccyx or the apex of the prostate.

The upper portion extends from the tip of the coccyx to the third sacral vertebra and is three or three and one-half inches long.

The division between these two portions of the rectum is marked by an angle in front of the tip of the coccyx where the rectum in its descent makes a backward bend.

The most dependent portion of the rectal mucous membrane is gathered into longitudinal folds called the columns of Morgagni, or columns of the rectum. There are usually six to twelve of these folds, which are about one-half inch long. Between the bases of adjacent columns of the rectum small folds of mucous membrane extend in an irregular dentate line known as the semi-lunar valves. The upper border of these folds constitutes the ano-rectal line and dipping down behind them are small mucous pockets, called the crypts of Morgagni. The so-called valves of Houston or rectal valves are three or four in number, usually three, and vary much in size and position. They consist of two folds of mucous membrane separated by cellular and muscular tissue. Their attachment is upon an inclined plane to the rectal wall.

The inferior valve is located one and one-half inches above the anus, the middle one about two inches higher up and the superior valve one and one-half to two inches above this. Their function is to support and direct the faecal mass in its passage through the rectum.

The most important muscle of the rectum, surgically speaking, is the external sphincter. It arises from the coccyx and the overlying fibrous layer of the skin, passing forward to divide at the posterior anal commissure and after surrounding the anus to re-unite at the anterior commissure and become inserted into the body of the perineum. Its superficial layer is circular and surrounds the anus while its deep layer composed of parallel muscular fibres separates and applies itself to the lower portion of the anal canal.

The internal sphincter muscle is composed of an aggregation of the circular muscular fibres of the lower end of the rectum and is about one inch in width.

It is separated from the external sphincter by a narrow zone of connective tissue, a slight depression marking the line of separation. This depression or line is known as Hilton's white line.

The levator ani muscle arises principally from the posterior surface of the body and ramus of the pubis and is inserted into the apex and sides of coccyx. In front of the coccyx, the fibres from each side unite with each other to form the median posterior raphe. The largest portion of the muscle is inserted into

*Tuttle.

the sides of the rectum about two inches from the anus, and blends its fibres with those of the sphincters. This muscle also forms the floor of the pelvic cavity. Its action is to support the rectum and the bladder during the expulsive efforts of evacuating either, to compress the rectum during defecation, and to prevent prolapsus of the same.

The internal sphincter is an involuntary while the external is a voluntary muscle, and is said to have a greater nerve supply than any muscle in the body.

ANO-RECTAL ULCERATION.

This lesion called also anal ulcer, irritable ulcer of the rectum and fissure in ano is one of much importance not only because of its frequency and the fact that it is often the cause of severe suffering but on account of its complications and sequelæ.

Ano-rectal ulceration in the sense in which I shall employ the term is a non-specific ulceration and originates in an injury or wound of the anal canal produced by the passage of hardened fæces or foreign bodies or by the introduction of syringe tips, the use of improper detergents, &c.

Injury or tearing of one of the anal pockets or crypts may be the cause of anal ulcer or fissure. A lesion within the anal canal does not naturally tend to recovery for the reason that the muco-cutaneous lining of this canal has little resisting power and a limited blood supply and further that it is continuously irritated by the bowel passages, and by the spasmodic contractions of the external sphincter muscle.

An ano-rectal ulcer may assume various shapes, as round, irregular, elliptical or linear, but it is when situated between two anal folds and within the grip of the sphincter muscle that it becomes the elongated and sensitive "irritable ulcer," or "fissure in ano."

Fissure in ano is frequently marked by a fold of hypertrophied muco-cutaneous tissue, constituting the sentinel pile of Brodie. Fissure in ano occurs oftenest near the posterior commissure, also frequently in woman at the anterior commissure.

The classical treatment of anal fissure is by incision. A clean cut with a sharp scalpel is made through the base of the fissure, dividing the outer portion of the external sphincter and extending about one-half inch further through healthy skin. The incision should be deep

enough to put the external sphincter out of action.

The muco-cutaneous edges of the fissure are freshened and the wound is then packed with iodoform or sterile gauze. The bowels are opened on the third day, after which the incision is dressed as before. The bowels are kept open daily, a light gauze dressing being inserted after each movement until the wound is healed.

In cases of fissure at the posterior commissure, a straight incision will not accomplish the indication laid down, viz.: putting the sphincter at rest, for the reason that it will not sever the sphincter to any considerable degree but rather merely separate its parallel fibres. In these cases a V shaped incision with its angle towards the fissure will put the sphincter at rest and insure a cure.

In mild cases, forcible divulsion of the sphincter under a general anæsthetic will sometimes be successful but is a less reliable method than incision and can never be depended upon where the fissure is at the posterior commissure.

The non-operative treatment of anal fissure is successful in cases not marked by induration or hypertrophy, nor by extensive ulceration. Such treatment is carried out without detention of the patient from his usual business by the application every two or three days, to the ulcerated area, of pure ichthyol.

A speculum is introduced and the ulcer being well exposed, alypin is insufflated over its surface or a four percent solution of eucaine is applied or better still injected subcutaneously.

Anæsthesia being produced, the ichthyol is applied by means of a well soaked pledget of cotton. This treatment cannot well be carried out without local anæsthesia as the ichthyol causes severe pain.

In proper cases, eight to fifteen treatments will effect a cure. During these treatments and as well, afterwards, the bowels should be properly regulated.

Ano-rectal ulceration, however mild, and whether properly termed tolerable or intolerable under the classification of Molliere is always a serious lesion and is regarded by Wallis as the most frequent cause of pruritus ani, perirectal and rectal abscess and of fistula in ano. The etiologic relation between fissure and hemorrhoids is one of much interest and importance, inasmuch as these conditions are often associated, and we are inclined to accept

the conclusions of Tuttle that fissure in ano with the resulting irritation of the anal canal is the cause rather than the result of hemorrhoids. A careful study of symptoms in many cases where the two conditions are associated warrants this conclusion.

RECTAL AND PERI-RECTAL ABSCESS.

The peri-anal and peri-rectal tissues are often the site of inflammations resulting in abscesses.

Such abscesses are due to infection and may contain the tubercle bacillus, the bacterium coli, the streptococcus, or the staphylococcus, or two or more infectious germs associated and the manner of infection is probably oftenest through a lesion in the proctodeum. Abscesses about the rectum may be classified as sub-tegumentary, ischio-rectal and pelvi-rectal.

Subtegumentary abscess is either sub-cutaneous or sub-mucous, the former situated between the sphincter and the skin and the latter between the internal sphincter and the mucous membrane.

Ischio-rectal abscess occupies the ischio-rectal fossa, often producing a marked bulging below the external sphincter muscle, or following the line of least resistance it may burrow through between the sphincters.

Pelvi-rectal abscess, more serious in its nature than those just described is located above the levator ani muscle and between it and the internal sphincter.

Again, pelvi-rectal abscesses may occupy one of the two antero-lateral peri-rectal spaces or the posterior peri-rectal space, and are designated accordingly, superior pelvi-rectal or retro-rectal abscesses.

Pelvi-rectal abscesses may be due to infection as above noted, or to necrosis of the bones of the pelvis or spine, or to inflammation or suppuration in the broad ligament, the uterus, prostate, urethra, bladder or appendix, or again to traumatism caused by instrumentation or operation.

The treatment for all cases of rectal and peri-rectal abscess is free incision and effective drainage. Poultices and ice bags are worse than useless and the delay incident to their use is unjustifiable. No fear need be entertained lest an opening be made too early. As soon as a circumscribed induration can be diagnosed, it should be freely incised whether it be superficial or deep.

Sub-mucous abscesses should be opened at their most dependent portion, after dilating the sphincters, by an incision which is carried downwards and outwards through the external sphincter and the skin.

The ischio-rectal variety should be incised well without the external sphincter. Retro-rectal abscesses are best reached by a semi-circular incision through the perineum between the anus and the coccyx.

The proper opening of a superior pelvi-rectal abscess is an operation of severe proportions and will often tax the skill of the operator to the utmost.

If the abscess has made its way well down between the levator and internal sphincter and especially if it produces a bulging of the anal canal between the sphincters, it may be opened by a free incision extending through the external sphincter and as far without this as may be indicated. If it cannot be reached in this way a careful dissection through the perineum will be indicated. As bearing on this point Tuttle says, "Any peri-rectal abscess which can be felt by the finger in the rectum can be reached by perineal dissection and should be so reached and opened." After completing the incision the sphincters should be well stretched. The operation finished in all rectal and peri-rectal abscess cases, the cavity should be irrigated with hydrogen dioxide and warm boric or 1-5000 bichlorid solution and then lightly packed with gauze, or a drainage tube or tubes introduced. Daily or more frequent antiseptic irrigation is desirable. The bowels should be kept open.

FISTULA.

A rectal or peri-rectal abscess, unless operated and cured, usually ends in fistula. Nearly all fistulæ are the sequelæ of abscesses.

A fistula, with an external and an internal opening is called complete and with but one opening, incomplete. A fistula may extend irregularly in many directions, sometimes nearly encircling the rectum or following the margins of the sphincters assume a horseshoe shape.

The success of operative treatment of rectal fistulæ is in many cases open to grave question, and a cure can only be expected in those cases which are not seriously complicated, and are non-specific, non-tubercular and benign. The prognosis, in any, excepting simple cases,

should be guarded and hinges on the pathologic condition present, the recuperative power of the patient and the extent of the destructive process.

The operative treatment is by incision or excision. The simple probing of a straight complete fistula has in a few cases resulted in a cure, but so infrequently as to be counted as accidental. The operation by incision of complete fistula consists in thoroughly laying it open with a curved sharp pointed bistoury or scissors, guided by a grooved director which has been passed through it and brought outside the anus. Burrowing tracks must be carefully looked for and if found must be laid open and the entire tract then thoroughly curetted. If the director, after being passed as above indicated does not cross the fibres of the external sphincter at a right angle, it should be removed and the external end of the fistula dissected forwards or backwards until it may be so passed, as it is always desirable to cut squarely through the external sphincter muscle.

Blind internal fistulæ are first converted into the complete variety by searching out the internal opening, a sometimes very difficult thing to do, introducing a probe pointed director bent as a hook, and then cutting down upon this through the external tissues and passing its point out through the opening thus made.

The operation is then completed in the manner just described.

If the sinus extends upwards behind the internal sphincter muscle as is the case where a pelvi-rectal abscess has broken through into the anal canal, the external sphincter should be freely divided, the fistulous opening dilated and the sinus curetted but the internal sphincter should be left intact. The same course is recommended even though an internal opening into the gut exists at or near the top of such sinus. If thorough drainage is secured this opening may close by granulation and should it fail, all the tissues below this opening may be incised. Such procedure is to be avoided if possible as it would involve cutting both sphincters and a portion of the levator ani muscle, which would result in temporary and perhaps complete incontinence. Again, the granulating of the wound might produce serious contraction or stricture.

The operative treatment of horseshoe fistulæ often taxes to the utmost the tact and patience of the operator. The direction of the sinus must be carefully made out and with all pockets

must be thoroughly opened and cleaned out. If two internal openings exist but one incision through the sphincter is permissible at one sitting. A second operation may be necessary to complete a cure.

Blind external fistulæ are best treated by a free incision a little distance from the external sphincter and parallel with its muscular fibres.

The sphincters should be thoroughly dilated and the operation is completed by packing the wound with gauze.

The bowels which should be empty at the time of the operation in all cases of fistulæ are opened on the third day and thereafter the wound must be kept clean and carefully repacked once or twice daily.

Excision with immediate closure is advisable only in cases of small straight fistulæ, and then often fails in the most skillful hands on account of inability to keep the wound aseptic.

The sinus may first be opened and then thoroughly dissected out or a probe having been passed completely through it and used as a tractor, an incision is made around the external opening and continued inwards with the probe as a guide until the entire sinus including the internal opening is removed. The wound is closed by buried catgut sutures, something after the method in perineorrhaphy and with a continuous skin suture.

A general anæsthetic in all but the slightest cases of operation for fistulæ, and rest in bed for seven to ten days after operation, is advisable.

HEMORRHOIDS.

These are either internal, external or mixed, i. e., interno-external.

The internal variety is due to a varicose condition of the superior hemorrhoidal vessels and the external to the same condition of the inferior ones.

Thrombotic piles are round or oval tumors produced by bleeding into the cellular tissues or by clotting of blood in a varicose vein.

Treatment consists in incising the tumor and removing the clot. Sphincter dilatation is not necessary.

Local anæsthesia with a solution of eucaine or cocaine is all that is required.

The operative treatment of hemorrhoids is by ligature, clamp and cautery, excision and crushing.

In this country, the first two methods named are the favorites. General anæsthesia, thorough

sphincter dilatation, aseptic technique and thorough preparation of the patient, are always advisable. Dilatation of the sphincters under local anæsthesia has not been satisfactory in my experience.

The question of the superiority of one of these two generally adopted methods of operating depends largely upon the experience and preference of individual operators.

I am free to say that my preference for the ligature operation as set forth in my communication to this society in 1896 has with further experience given way to one for the clamp and cautery in a large majority of cases. In hemorrhagic cases I still adhere to the use of the ligature.

The danger of hemorrhage after operation for hemorrhoids is to my mind much exaggerated. Crushing the base of the tumor by the clamp and thorough cauterization are a reasonable safeguard against such an accident except in a few rare cases in which a careful discrimination will lead one to select the ligature.

The danger of infection is probably less after the use of the clamp and cautery, as the latter destroys all germs within the field of operation and closes the vessels and lymphatics against infection.

The after treatment consists in the hypodermic injection of a quarter grain of morphine with a one hundred and fiftieth of atropine immediately after the operation; the application of an aseptic pad, rest in bed for eight to fourteen days, liquid diet until the bowels are opened, the administration of castor oil on the third evening after the operation and an olive oil enema at the time of the first bowel movement. After this a saline laxative may be given each morning to cause a daily evacuation.

The treatment of hemorrhoids by the injection method can be considered only palliative. It is, however, the method of choice on the part of many patients who are but slightly inconvenienced from hemorrhoidal disease and who do not care to give up the time necessary for a cure by operation. This treatment is proper in carefully selected cases of internal hemorrhoids, the most satisfactory ones being those in which the tumors protrude and may be readily reduced. By the interstitial injection of a chemical irritant in sufficient quantity and strength to materially limit but not cut off the circulation in the pile mass we endeavor to

bring about a moderate degree of inflammation resulting in contraction of the tumor.

Carbolic acid is the important constituent in most of the solutions used. Strong solutions which will produce sloughing and consequent ulceration, should always be avoided. A ten or fifteen percent. solution of carbolic acid in sterile glycerine and water is perhaps the best and safest.

Five to ten minims of the solution may be injected according to the size of the tumor.

One or two tumors only should be injected at one time and any subsequent treatment should be after an interval of five or six days.

Gradual dilatation of the sphincters may be necessary as the tumors must always be brought into full view. The parts should be thoroughly cleansed and the tumors after injection returned within the rectum. After treatment is seldom necessary.

NEOPLASMS.

Neoplasms of the rectum are either benign or malignant, the former classification embracing adenoma, papilloma, myoma, fibromyoma, fibroma, lipoma, enchondroma, lymphadenoma and myxoma, and the latter carcinoma and sarcoma.

Benign growths of the rectum are especially liable to take on malignancy.

The early and complete removal of innocent growths is therefore of extreme importance. Malignant growths of the rectum demand early and complete removal provided such a course is possible and the patient's general condition does not contra-indicate such procedure.

In sarcoma of the rectum serum therapy promises little, but recent experience with X-ray treatment suggests its use in advanced cases.

EXCISION OF THE RECTUM.

The various methods employed in this operation are the perineal, sacral, vaginal and the abdominal, or one of the first three named combined with the abdominal. When the growth is limited to the lower portion of the bowel, that is, below the peritoneal reflection, the perineal is the operation of choice. For growths between this point and the third sacral vertebra, in other words, for those high up but not beyond the limits of the rectum, the Kraske operation, modified by osteoplastic resection of the sacrum and coccyx is perhaps the best. Recto-sigmoidal growths are best ap-

proached by the abdominal route, and the conditions found will determine the operator's choice of attempting to complete the operation by this route or of adopting the combined method.

PROLAPSE OF THE RECTUM.

This condition is met with in varying degrees, and many methods of relief have been tried. In moderate cases the use of the clamp and cautery for the removal of strips of mucous membrane in the hope of shortening the prolapsed portion of gut has been recommended and is sometimes successful. The actual cautery may be used in a similar manner.

Excision of the mucous membrane covering the prolapsed portion of bowel and suturing its cut edge to the skin is a simple and often a successful operation. In this procedure the prolapsed muscular coat is folded upon itself or invaginated above the suture line.

Many other procedures have been devised for the cure of rectal prolapse including excision of a portion of the gut, infolding of the ampulla, rectopexy and sigmoidopexy. Of these, sigmoidopexy offers most satisfactory results. The abdomen is opened by an incision through the left rectus muscle, or by an incision parallel with Poupart's ligament. The latter is preferable as it affords a better view. A piece of parietal peritoneum two to three inches in diameter is removed from the anterior abdominal wall at the lower portion of the incision provided the same is through the sheath of the rectus or in the left iliac fossa in the other method.

The sigmoid colon is drawn up until the procidentia is reduced and is fixed to the site selected by silk or linen sutures which pass through its longitudinal muscular band and likewise through the transversalis fascia or the iliac fascia as the case may be. The abdomen is closed in layers and without drainage as in all cases of aseptic abdominal surgery.

The time at my disposal will not permit of the discussion of ulceration and stricture of the rectum, tubercular and specific diseases affecting the same, colostomy nor of colitis in its various forms, to any one of which an entire paper might profitably be devoted.

In all surgical work undertaken upon the rectum and anus, the strictest aseptic precautions should be observed and while it is not easy to secure and maintain perfect asepsis,

the success of present day rectal surgery attests the value of such procedure.

THE REPORT OF FOUR CASES OF TOXAEMIA COMPLICATING PREGNANCY RESULTING IN PULMONARY OEDEMA AND DEATH.*

By S. W. Hammond, M. D.

I wish to call the attention of the members of the society to-day to a phenomenon, or apparent accompaniment of the puerperal eclamptic condition, of which I find no special mention made in the books or current medical literature, viz.: acute pulmonary oedema. All or nearly all authors consulted on the subject, mention pulmonary oedema as a sequela of several disease conditions, including Bright's disease, but no reference by report of cases or otherwise do I find of its being a cause of death in puerperal eclampsia.

I do not doubt some present may have had cases similar to those I shall cite later, but I find no record of them.

Many theories have been advanced as to the etiology of eclampsia, but none of them have stood the test of time. Zweifel has aptly styled it "the disease of theories." It has been considered a disorder of the nervous system incident to pregnancy. Lever's researches resulted in making the eclamptic condition and uremia identical; this later was abandoned.

The picture so often before us, as well as the clinical findings, i. e., oedema of face and extremities, complaint of headaches, ocular and gastric disturbances, with decreasing urine, presence of albumin and casts, and lessening of the urea, certainly are not unlike that found in the uremia of Bright's disease, indeed treatment especially prophylactic, both dietetic and medicinal, as recommended by most authors, is practically that as laid down in corresponding uremic conditions.

Other theories advanced as to causation were the presence of ammonium carbonate in the blood, anemia and oedema of the brain, the presence of some micro-organism in the blood stream, auto-intoxication, as seemingly borne out by the findings of Chamberlent and Tarner, i. e., the discovery of the decreasing toxicity of the urine and the increasing toxicity of the blood serum in the same patient in eclampsia.

*President's Annual Address before the Rutland County Medical Society, July 9, 1907.

I believe that most physicians of the present generation lean to the theory of eclampsia taking origin from some derangement in fetal metabolism. Certainly the tendency to cessation of symptoms following delivery of the child, would seem to be supportive of this theory. Whatever theory seems most tenable as to the etiology of puerperal eclampsia, it nevertheless cannot be denied that nearly all evidence points to some toxic substance being responsible for the symptoms, whether it be simple or multiple and complex in its nature.

CASE I. Mrs. C., American, born of Irish parents, ae. about 40, multipara, occurring in January 1906, in the practice of Dr. J. D. Hanrahan of Rutland. A physician was first called at about 1 a. m. because of an increasing dyspnoea. She was at near full term pregnancy and not in labor. It could not be ascertained that there had been any unusual symptoms prior to this time, or any abnormality of urine, nor general oedema. At 3 a. m. there was abundant frothy mucous, tinged with blood, increasing dyspnoea and cyanosis, until 5 a. m., when the patient died.

CASE II. Mrs. H., ae. 32. American, born of Irish parents, primipara, occurred in my practice in February, 1906. Labor pains came on at full term, during the absence of her accoucheur, and some hours before I was sent for, which was at 3 a. m. I found her sitting up in bed, with pains coming regularly, but complaining of slight dyspnoea and with a hacking cough. Pulse full and bounding, temperature 100°. Examination revealed the os dilated about one-half, moist rales over both lungs posteriorly. The dyspnoea increased with oncoming of a profuse frothy expectoration, later to be tinged with blood.

Counsel was sent for, and it was decided to empty the uterus at once, the head having now descended sufficiently low as to be reached easily. An effort was made to lay the patient back on the bed to administer chloroform and apply forceps, when she expired, literally drowned out in her own secretions,—a profuse salmon-colored frothy mucous. She was conscious up to the last. Death occurred six hours following the commencing of dyspnoea. Urine catheterized after death was very dark, albuminous, 25% by bulk, low in urea, and containing epithelial and granular casts.

It may be of interest to note that, at the request of her priest, I delivered the child

after the mother's death, that it gasped once faintly, and was baptized in the Catholic faith.

The patient was somewhat oedematous about the face, labia and lower extremities, which had existed but a few days. Her regular attendant states that the urine three days before death did not by ordinary tests show any abnormality.

CASE III. Mrs. P., ae. 22. Italian, patient of Dr. L. A. Heidel of Rutland, occurred in May, 1907. The first symptom of the usual dyspnoea came on twelve hours before delivery, which was normal. The symptoms then became intensified, when counsel was called. The pulmonary secretions were becoming abundant and of the characteristic red frothy mucous. This case was treated with extensive cupping over the lungs posteriorly and venesection. Adrenalin chlorid solution was given half hourly, resulting in temporary relief only, the patient succumbing twelve hours following delivery and twenty-four hours after the first dyspnoeic attack. The urine coagulated heavily with albumin on boiling.

CASE IV. Mrs. H., ae. 36, primipara. American, of Irish parents, occurred in my practice in May, 1906. Patient had an uneventful pregnancy until the last week, when a slight trace of albumin appeared in the urine, without oedema of extremities or subjective systems.

I was called May 6th, the patient supposed to be in labor, but no real progress was made until May 9th, when the os commenced to dilate somewhat. At this time I noticed the pulse becoming more rapid, and that the pupils were somewhat dilated. Labor progressed slowly until the afternoon of the 10th, when I gave the patient chloroform and delivered her easily. The patient rallied from the anaesthetic and conversed with bystanders, but was breathing quickly, and her color was a little dusky. Cough and expectoration, soon to be tinged with blood, ensued. I realized at once the grave danger of my patient and sent for counsel, but despite all treatment she died in about one and one-half hours following delivery, the day following the death of case III.

In questioning our local physicians, some with extensive obstetrical practices, I do not find that any have ever seen pulmonary oedema complicating pregnancy. It is further noteworthy that these four cases occurred within

a seventeen months' period, and I do not believe any present will question that they all, exhibiting as they did, many symptoms in common, died from any exciting cause other than in patients dying in true eclamptic seizures. In other words, they died from toxemia of pregnancy, but the explosion coming in the form of an acute pulmonary oedema instead of the usual convulsions.

Anders says, in writing on the subject in a general way: "The mode of production of pulmonary oedema is not definitely known." The causes usually given are left ventricular failure and combined change in the walls of the blood vessels and the fluidity of the blood. The theory of failure of the left ventricle to do its work, as in pneumonia, can scarcely be conceived to be the correct one, as the heart in these cases does not seem to have been overtaxed by long illness, but the theory of vessel wall or blood changes, or both, caused by a toxic substance in the blood, may be the correct one.

Our knowledge of the exact cause of the puerperal eclamptic condition, being so imperfect, coupled with lack of knowledge of the way acute pulmonary oedema is produced in all conditions, and especially in the one under consideration, makes the situation doubly interesting, and one worthy of serious thought and study.

WHEN WILL THE PROFESSION AWAKEN?

By Charles C. Miller, M. D., 70 State St., Chicago.

When will the profession awaken to the importance of the field of featural surgery? This is a question which should be of interest to the progressive members of the profession. During the last ten years a marked demand has been created for surgeons capable of relieving featural defects, but the regular profession has gone on regardless of the opportunities offered in this field which advertisers have been monopolizing without dispute.

The demand for featural surgery has not been created by the advertisers. They are the result of the "beauty columns," which have occupied so prominent a place in the public press. For years newspapers have had much to say regarding the means used in adding to the attractiveness of women and many allusions are made in these "beauty columns"

to the skill of surgeons in correcting the defects which resist simpler measures. Now these allusions to specialists have been an easy means of putting off insistent correspondents who were not relieved by the lotions and ointments recommended in the "beauty columns," but the search for the surgical specialist who was a specialist in this field, up to very recent years would probably have been fruitless. Certain men realizing that in this field they would have an opportunity for practice without competition the advertising beauty specialist sprang into prominence. Unfortunately advertisers are so careless as to consequences that many of their patients regret having fallen into their hands and it is for this reason, highly important that the regular profession take notice of featural surgery and make a united effort to take this specialty from the hands of the advertisers. The operations for the relief of many of the featural imperfections are so simple than any general practitioner or surgeon with slight outlay of time should fit himself for the performance of the operations successfully. Certain operations are difficult but with a fair amount of experience with the simpler operations the general practitioner who applies himself intelligently can hope to do almost any of these more difficult featural operations.

Featural operations include many operations and with intelligent surgeons interested in the field we can expect operations to be developed which we do not dream of today.

Infiltration is sufficient to permit of the performance of any of the featural operations painlessly. The successful infiltration of tissues is a simple procedure. Any practitioner can learn to infiltrate with an ordinary hypodermic syringe in five minutes time. Tissues infiltrated properly may be pricked or cut without causing pain to the patient. That is the test of the success of the technic. Infiltration to be entirely successful should be accomplished painlessly. To insure this the proper selection of the infiltrating solution is of greatest importance. If one would listen to the wise gabble of certain surgeons, infiltration would require all the skill of a chemist, and a little bit more, no doubt, but for practical purposes only one class of solutions is useful for infiltration. This class includes solutions containing a trace of cocain or similar agent. Cocain solutions are made without trouble by

adding tablets of the drug to boiled water. A half grain tablet in one or two ounces makes an infiltration solution ready for use.

As before mentioned certain of the featural operations are very simple. Any surgeon should successfully invert an everted lip or reduce a lip of excessive thickness without difficulty, but the operation for reducing the size of the mouth may require all the skill of the most skillful featural surgeon.

We have other operations which are performed with the greatest ease, such as the operation for outstanding ears. This condition is seen in many individuals. The placing of the ears closer to the side of the head may almost invariably be accomplished by the excision of a segment of skin and the loose cellular tissue behind the ear and then the suturing of the skin interval. The scar when healing is completely hidden behind the ear so that exact approximation is not of great importance and the results as I have said are usually most gratifying from this simple operation. The surgeon in doing this operation for the first time usually excises insufficient of the skin and insufficient of the loose tissue overlying the mastoid bone so that he does not overcome the outstanding quite as much as he expects. If attention is given to this point the operation should be an entire success. Failure simply means a repetition of the operation. The operation should be entirely painless if the tissues are properly infiltrated.

DRUG ERUPTIONS.*

By G. Gordon Campbell, B. Sc., M. D. Professor of Dermatology, Medical Department, University of Vermont: Lecturer in Clinical Medicine, McGill University: Physician to Out-Patients, Montreal General Hospital.

The subject which I have chosen for my paper to-night is one which must prove of interest to every practicing physician, whether his work lies along general or special lines. The unexpected and untoward effects following the internal administration or external application of drugs are often a cause of annoyance to both physician and patient, and, when they happen to take the form of a cutaneous

eruption, are liable to occasion considerable alarm to the patient and thus tend to discredit the physician who should properly be held in no way responsible for the unusual effects produced. An early recognition of the cause of the disturbing feature will serve both to allay the patient's fears and to produce a rapid cure of the condition by the prompt withdrawal of the offending agent. Hence, a knowledge of the eruptions which may at times follow the administration of the commonly used drugs is of value not alone to the dermatologist.

The earliest record we have of medicinal agents being recognized as the cause of skin lesions dates back over one hundred years, but until quite recently the number known to produce this effect was relatively few. Now more accurate observation and increased interest in the subject has increased the list to over a hundred. Many of these give rise to dermatoses so infrequently or in such slight degree that they can be passed by and it will be necessary to refer only to the more frequent forms of eruption occurring in connection with the administration of the more commonly used drugs.

Attempts have been made by several dermatologists to classify drug eruptions according to their anatomical form, but such a classification has proved impracticable from the multiformity of lesions met with in the exhibition of a single drug. So, too, any broad general features which will at all times serve to differentiate them from idiopathic lesions of the skin, cannot be formulated. Still there are certain characteristics which indicate to the dermatologist the probability that any specific case of skin disease is likely of this nature. In the first place the rapidity with which an eruption develops is suggestive. When an external irritant is the exciting cause, the eruption usually appears within a few hours after its application and is limited at first to the site of application. Moreover the severity of the induced dermatitis depends directly upon the strength of the irritant, the length of exposure and the sensitiveness of the skin. Parts of the body where the skin is thin and well supplied with nerves, such as the face and genitals are much more susceptible than other regions.

Eruptions caused by the ingestion of drugs may appear almost immediately, or, in the case of cumulative drugs, take weeks or

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months to develop. It is to be noted, however, that the condition of tolerance to a drug, which we so often see established in regard to other untoward symptoms, is rarely reached so far as its cutaneous manifestations are concerned. On the contrary, one attack of dermatitis medicamentosa seems to lead to a heightened susceptibility to future attacks.

The form taken by drug eruptions embraces all grades from simple hyperæmia to gangrene, and, speaking generally, there is no constant lesion but a multiplicity and variety of forms associated with the same drug. The locality affected, in most cases of external application, corresponds to the parts exposed to contact, but the eruption may extend widely beyond these limits. The course varies; rapid improvement follows the removal of the materies morbi, while continued use intensifies the extent and severity of the eruption.

In most cases the intensity of the eruption is directly proportionate to the amount of the drug ingested, but there are numerous instances reported in which a relatively small dose, and one incapable of producing any of the other untoward symptoms of the drug, has caused most severe skin lesions, and on the other hand occasionally it has been found that after a larger dose the same individual is immune. That indefinable something we are pleased to call idiosyncrasy is perhaps brought more prominently to our notice in connection with drug eruptions than anywhere else in medicine. The physician who has been accustomed to making free use of quinine for many years, may some day be startled to find that a small dose has produced gangrenous areas of the skin.

The changes produced in the skin by external applications are easy to understand, they are simply the phenomena of irritation. The production of eruptions from the ingestion of drugs is not, however, so easily explained. According to Collcott Fox there are five ways in which a drug may act: (1) upon the vasomotor or trophic centers, (2) upon some particular tissue or organ, *e. g.* the peripheral nerves or skin itself, (3) during elimination by the skin glands, (4) by excessive excitation of a function, such as sweating, and (5) by its influence on the blood mass and vessels. Morrow holds to the theory of a neurotic origin in all cases. A trophic influence is exerted upon the cutaneous tissue by the nerve centers and when this regulating power is disturbed,

perversions of nutrition result. He explains idiosyncrasy as a heightened susceptibility of the nervous system.

The question of diagnosis in eruptions resulting from external applications is generally easy. On the other hand the diagnosis of a dermatitis from the internal administration of some drug may prove very difficult. The resemblance of many of the drug eruptions to the exanthemata is very striking and this is added to by the presence of symptoms of catarrhal inflammation of the fauces and suffusion of the eyes along with the rash. In general it may be said that a drug eruption does not exactly conform to the exanthem it resembles. For one thing it is usually not uniform. An erythematous eruption will show a few papules, a papular one vesicles and pustules as well. Then the absence of any elevation of temperature, or if present, the want of proportion between the temperature and the extent of the skin lesions will help. The prompt disappearance of the eruption when its cause is removed, should one happen to suspect it, will be conclusive. Sometimes, while suspecting the cause, it is difficult to prove its presence in anything the patient has been taking. Here a test for the suspected agent in the urine will generally yield positive results. Patent medicines and salves of unknown formula give much trouble in this way.

I will now review briefly in alphabetical order a number of the commonly used drugs and outline the eruptions associated with each.

Antipyrin taken internally may give rise to a patchy erythema, sometimes discrete but more often confluent, and not infrequently closely resembling measles in grouping. The eruption is usually confined to the covered portions of the body, the face and exposed portions remaining free, and thus serving to distinguish it from measles. It is attended by slight itching and sweating and occasionally by some catarrhal symptoms of the mucous membrane of the nose and throat. Purpuric and furunculular lesions have been seen rarely.

Acetanilid or *antifebrin* rarely produces rashes but it is much more frequently used, being the cheapest of the coal tar class of analgesics it is the basis of most of the headache powders sold at the druggist's counter. The eruption is usually erythematous in character and resembles that due to antipyrin. A toxic dose produces marked general cyanosis.

Antitoxin eruptions are fairly common.

They may be simply patchy erythemas, morbilliform, scarlatiniform, and quite frequently urticarial in character. The time at which they appear is from a few hours to several days after the injection. The subjective symptoms vary. Itching is commonly met with and occasionally a rise of temperature with pain and swelling about the joints. The rash lasts several days at least and sometimes longer.

Arnica, the much vaunted specific among the laity for bruises and sprains now and then gives rise to an erythematous-vesicular eruption with intense burning and itching and closely resembling eczema. It may spread over surfaces remote from the region of original application and the resulting dermatitis may have all the objective features of erysipelas.

Arsenic has long been known to produce skin lesions both from its external and internal use. While as a therapeutic agent it is not used locally except as an escharotic in some of the cancer pastes, it is found in many of the dusting powders and lotions sold as cosmetics, and its industrial use in the dye of cheap underclothing and the manufacture of artificial flowers, green cards, wall paper, etc., exposes many persons to its local effects. Poisoning occurring in this way is first evidenced by an erythema, but if the cause is not detected and the poison continues to act upon the skin, papular, pustular, vesicular and even ulcerating lesions follow according to the degree of irritation caused. Taken internally it may produce almost every form of cutaneous eruption. In any case there is apt to be an accompanying conjunctivitis which aids very materially in leading one to a correct diagnosis. Among the characteristic forms may be mentioned a true herpes zoster due to neuritis and, in long continued administration, a horny thickening or keratosis of the skin of the palms and soles. Greyish or brownish pigmentation of the skin of the face and body is sometimes met with and may resemble and give rise to the suspicion of Addison's disease.

Belladonna and *Atropine* produce a dermatitis both on local and internal administration. Occasionally the application of a belladonna plaster or lotion causes an erythematous or vesicular eruption; so, too, the instillation of atropine into the eye may be followed by local conditions suggesting erysipelatous inflamma-

tion. On internal administration, erythematous eruptions of a scarlatiniform type are not very rare. They are usually confined to the face and neck but may become general. Children, although as a rule they bear much larger doses of belladonna proportionately than adults, seem to be more susceptible to the cutaneous effects, and the frequently associated redness of the fauces renders the resemblance to scarlatina very striking. The absence of the constitutional symptoms and rapid disappearance of the rash soon clear up the diagnosis.

Bromine and its compounds produce the dermatitis with which we are all familiar, namely the so-called "Bromide Acne." It occurs in about 70 per cent of persons taking bromides constantly. It consists of papules, tubercles, and pustules arising in regions rich in sebaceous glands, such as the face, genitals and hairy parts of the body. The lesions differ from acne in showing a more intense hyperemia and surrounding inflammatory areola. They disappear in from one to three weeks after discontinuing the drug, but are very apt to leave scars. Of the other forms of eruption we recognize the erythematous which is of a patchy distribution with a bright or dusky red colour usually seen about the lower extremities, the confluent acne in which the pustules tend to run together and produce indurated nodular areas exuding pus, the ulcerative, verrucose, bullous and vesicular form.

Chloral occasionally gives rise to an erythematous bright flush upon the face, successively affecting the neck, chest and extremities, ordinarily transient in duration and not attended by subjective sensations or constitutional symptoms. Papular, urticarial, vesicular and petechial forms are rare.

Carbolic acid applied locally causes an erythema. An important point to recognize is its power when applied in a watery solution, completely enveloping an extremity such as finger or toe, of causing gangrene. I have seen two cases of this and quite a large number have been reported. Even weak solutions of 1 to 50 or less have resulted in total destruction of the tissues. An explanation offered is that in the process of evaporation the water is removed while the acid becomes relatively stronger in the solution until an escharotic effect is produced. As carbolic acid in oil

never produced like effects this is possibly the correct explanation of the cause.

Copaiba and Cubebs. As these two drugs are so often used together it is convenient to treat them as one. Of the two, copaiba is much more prone to determine a dermatitis than cubebs. The eruption consists of rosy or bright red macular erythema (morbilliform) disappearing on pressure. It has a predilection for the wrists, ankles, knees, hands and feet, but may be general in distribution. It appears after several days, always by the eighth day. One also meets with an urticarial, vesicular, bullous and petechial form.

Iodine and its compounds is another well known cause of drug eruptions. Several of the popular patent medicines contain it, notably the Sarsaparillas. The effect produced by painting strong tincture of iodine on the skin does not need description. Repeated applications may, however, cause, besides the local condition, papular, pustular and even bullous eruptions at different parts of the body, due to absorption of the drug locally. The same is occasionally seen from the injection of iodine in the cure of hydrocele. Taken internally, in the form of one of the alkaline salts of which potassium iodid is the most used, the resulting eruptions are very various. The papulo-pustular or acneiform type is the most common and resembles that described for bromine. The face, back of the shoulders and upper part of the chest and arms are the common sites. It usually appears on the third to the sixth day. Erythema is the mildest stage and probably always precedes the acne stage but attention is not drawn to it.

Iodoform, locally, used as a dressing for wounds or ulcers causes an erythematous rash which may proceed to the development of vesicles and bullæ. Susceptible individuals are affected by extremely minute quantities. An interesting point is that iodoform may be applied to a wound without injurious effects until the surface becomes favourable to absorption when the eruption and often systemic intoxication occur.

Opium and *morphia* occasionally cause erythematous and papular eruptions and the ulceration resulting in many morphia habitues at the site of the puncture with a hypodermatic syringe is well known.

Potassium Bichromate, which is used in the dyeing of underclothing and woolen goods generally, is not an infrequent cause of papular and pustular eruptions. Workers in factories where this chemical is used require to wear respirators constantly, as otherwise they suffer from very intractable ulcers about the skin and mucous membranes of the air passages.

Rhus toxicodendron. Poison ivy is a common cause of dermatitis during the summer months. There are two species found in this locality which are both poisonous the *R. toxicodendron* and *R. venenata*, the latter being known as Poison Oak. The susceptibility of individuals varies widely; many are quite unaffected by handling the leaves or even having the juice rubbed on the skin, while others cannot pass any time in the neighbourhood of the plants, even without actually touching them, without becoming affected. The dermatitis appears from a few hours to several days after exposure and begins as erythematous areas usually on the hands or face accompanied by intense burning and tingling. Within a few hours the parts involved become swollen and œdematous, the œdema often reaching such a degree that the individual cannot open his eyes, and a crop of vesicles or bullæ arise. From the original region the disease spreads until the whole body may become involved. Where the primary focus is on the hands it is found that the parts touched by scratching or in the act of dressing become involved, thus the disease is spread.

Sulphonal rarely gives rise to erythematous or erythematopapular eruptions.

Salicylic Acid and its compounds is an occasional cause of most severe forms of dermatitis. The more frequent varieties are the erythematous scarlatiniform and urticarial but all grades are seen even to local gangrene.

Tar preparations and *Oil of Cade* are used considerably in the external treatment of diseases of the skin. Tar is also a ingredient of many of the patented ointments and lotions. When it is applied to an already inflamed surface, such as an acute eczema, and especially in infants and young children, it produces an erythematous, papular, vesicular or pustular dermatitis. This is occasionally accompanied by a degree of œdema sufficient to suggest erysipelas. Turpentine, which is allied to tar,

taken internally may produce erythema with intense itching and irritation.

Treatment of the eruptions produced by drugs depends of course entirely upon the character of the eruption. As all of them are greater or less degrees of dermatitis, sedative applications are found most useful. A good rule is to treat the case along the same lines that one would follow in the idiopathic eruption which it simulates, always of course discontinuing the exciting cause. In the exhibition of bromides I believe the addition of small doses of arsenic act in part as a preventive of the dermatitis. On the other hand I have seen on one occasion an arsenical erythema arise when the two drugs were combined in this way and both it and the bromide acne were present at the one time. This was proved by the administration of each drug separately. In very acute conditions nothing answers better than the continuous application of lead lotions. Lotions of hamamelis calamine, zinc oxide or resorcin also do well.

In conclusion it may be of interest to enumerate those drugs which are most likely to produce eruptions simulating the exanthemata.

Of the morbilliform type we have antipyrine, antitoxine, belladonna, copaiba and cubebs, opium, sulphonal, tar and turpentine.

Of the scarlatiniform, antipyrine, antitoxine, belladonna, chloral, copaiba and cubebs, quinine, sulphonal, salicylates and turpentine.

THE TECHNIQUE OF THE OPERATIVE TREATMENT OF HEMORRHOIDS UNDER LOCAL ANESTHESIA.

By T. Chittenden Hill, M. D., Boston, Surgeon to the Rectal Department of the Boston Dispensary.

During the past few years the writer has had exceptional opportunities for seeing and treating a large number of hemorrhoidal cases through his connection as attending surgeon with one of the largest rectal clinics in this country. This experience has demonstrated the fact that many patients with internal hemorrhoids, will often endure much suffering before they will consent to an operation that requires for its performance the employment of general anesthesia and this, notwithstanding that many of the former objectionable features of ether and chloroform narcosis

have been greatly minimized by the skillful administration of these agents in combination with nitrous oxide gas, ethyl chloride, etc.

There are still many patients who regard all ether operations as portentous, and it is truly remarkable and hardly conceivable the inconvenience that will sometimes be endured and even the distasteful duties that patients will perform for themselves, rather than submit to an operation that requires for its performance general anesthesia.

The replacement of internal hemorrhoids after each act of defecation, soiling of undergarments from hemorrhages, the pain incident to strangulation, when gripped by the external sphincter, the soreness and pain at other times are among the annoyances which these patients will endure for years, getting only temporary relief from the numerous pile salves, lotions, suppositories, etc., which are at the present time so widely advertised.

It has now been conclusively proven that nearly all of those afflicted with hemorrhoids can be relieved just as radically and safely by means of simpler measures, provided the operation is undertaken by one who has had the patience to master thoroughly the principles of infiltration anesthesia, and familiarize himself with the difficulties encountered in applying these principles to this operation.

In order to operate for hemorrhoids with a minimum amount of discomfort it is very essential that the surgeon should first have a general conception of the characteristic arrangement which these pile tumors commonly assume, and secondly that he should have perfected his technique in the steps of the ligature operation by previous experience with the patient under complete anesthesia.

The fact that hemorrhoids have a constant and distinctive peculiarity in the manner in which they develop was first pointed out to me by Mr. W. Ernest Miles of London, and my observations which are based on over 500 cases, in which the number and exact location were carefully recorded, have tended to confirm the uniformity with which this arrangement exists.

The drawing (Fig. I) was made to show the characteristic arrangement of internal hemorrhoids as they may be seen in most individuals. The drawing is intended to show the patient lying on the right side (the position for operation) with the internal hemorrhoids

prolapsed. No attempt was made to represent the external hemorrhoids, which, although they often co-exist, may yet be absent entirely, and when present, vary greatly in size and shape, and may assume any position in the anal circumference.

Seven internal hemorrhoids are the most that I have ever observed in any single individual, and the highest number frequently met with does not exceed five, in which case they will usually assume the position of the larger hemorrhoids in the drawing.

By dividing the anal circumference into quadrants, for the sake of convenience of description the location of the hemorrhoids may be stated as follows: The right anterior pile is invariably alone. This is the first pile to develop, and always can be demonstrated, except in those cases in which it may have sloughed in consequence of a previous strangulation. The right and right posterior are coalesced. The left and left posterior are also coalesced. Occasionally the right and right posterior are distinct, and likewise the left and left posterior. In case only two or three piles have developed, they are generally distinct.

Bearing in mind these considerations, and by referring to the illustration, it can be readily understood that in the ordinary case of four or five internal hemorrhoids, the tumors may be removed in three separate masses, because of the fact that two of the hemorrhoids on each side almost invariably develop as one.

CHOICE OF OPERATION.

It is the writer's opinion that the ligature, the foundation stone upon which all other operations are based, with the single exception of the Whitehead (circular incision), is the operation of choice, when local anesthetics are employed. Even when general anesthetics are used, it is very doubtful whether any of the numerous modifications are of much practical value, owing to the character of the tissues and the peculiar anatomy of the anal canal.

When it is recalled that the sphincter muscles act as purse strings constricting the anal canal and also that when internal hemorrhoids are present there is considerable redundancy of mucous membrane, it can be readily understood that when the hemorrhoidal tumors are removed by the method presently to be described,

that the action of the sphincters, both external and internal, serve the purpose of very accurately coapting the edges of the wound. This anatomical explains why the ingenious modifications of the ligature method are so often discarded by those who operate considerably on this class of patients.

Not infrequently we see reports of some new operation, and now and then it is exploited by a surgeon of wide reputation, in which the only modification of the original procedure is that the wound is closed with immediate suture after the pedicle has been ligated. This addition to the older operation requires for its performance careful preparation of the patient for operation, profound general anesthesia, a tedious operation, the use of opium for confinement of the bowels for five or six days, a limited diet and detention from business for from two to four weeks.

And yet, notwithstanding all this technique, careful after-treatment, etc., the question may reasonably be asked, is primary union often secured? The wound is not examined; how, therefore, is one to say positively that there has not been a small slough at the seat of the ligated pedicle? Certainly, after the simple ligature, when properly applied, there is but little evidence of ulceration, of any amount of discharge, or of any considerable gaping of the wound.

Another disadvantage of the excision method is that there is always some danger of infection following the closure of wounds in the ano-rectal region, whereas such is not the case if the wound is left open so as to secure drainage.

OPERATION.

With this rather cursory reference to the different surgical procedures, I wish to call attention to the operation known as Allingham's, which can be performed safely and with but little discomfort to the patient under local anesthesia.

The success of the operation depends, as is the case when operating in other cavities of the body, upon a certain amount of manual dexterity and careful attention to the details of producing thorough anesthesia of the field of operation. An operation for hemorrhoids, unless it is rendered practically painless, is

much better performed under general anesthesia.

A careful preliminary examination is important to determine the exact situation and size of the tumors which require removal, as well as to ascertain whether any other condition, such as fissures, fistulae ulcers, or polypoid growths, are co-existent. Failure to make this preliminary examination not infrequently will lead one to attempt cases which had much better have been subjected to general anesthesia. On the day before operation the bowels should be moved by a laxative. Purgation is by no means necessary, as it is likely to lead to movements during or immediately following the operation.

In case immediate operation should seem desirable, the patient can be quickly prepared by giving an eight ounce enema of boric acid solution, which will effectually clear out the ampulae of the rectum of any retained feces. The patient is now placed in the right semi-prone position, since the greater number of hemorrhoids will usually be found on this side. If the external sphincter is found to be spasmodic and hypertrophied, so that the hemorrhoids cannot be readily protruded, the operation may still be proceeded with by blocking off the nerve supply as suggested by Tuttle and Pennington. They have demonstrated that the sphincter muscles can be dilated with comparatively no pain by the injection of a few drops of cocaine solution into them at the point of entrance of the lesser sphincterian nerves. The needle is inserted in the posterior commissure three-fourths of an inch from the anus, from which single puncture of the epidermis the nerve supply of the anal canal may be effectually blocked. The divulsion of the sphincters is now carried out in the same manner as though the patient were profoundly etherized, and the small amount of discomfort occasioned by gently and gradually dilating even the most rigid of sphincters is quite surprising to one who sees it for the first time. The hemorrhoids, now being prolapsed, they are operated on in rotation, beginning with the most anterior one on the right side (Fig. II). The others are taken in order, those on the lower side being first removed. By observing this order, the free oozing of blood which takes place upon separation of the hemorrhoid from the bowel will not obscure the field of operation in the manner in which

it would were the superior ones first removed. Each tumor is now in turn moderately distended with one-tenth of 1% solution of cocaine, then seized with a pair of pile forceps, and while gently elevated, the hemorrhoid is dissected upward until it is attached by a narrow pedicle which contains its main blood supply. There is very little danger of hemorrhage in this step of the operation, as the central artery and vein lie very superficially under the mucous membrane, and if the hemorrhoid has been elevated as just described, it is hardly possible to wound any large vessel. Carelessness, however, in observing this small detail might result in a troublesome hemorrhage.

A ligature is now tied about the pedicle as high up as possible, and the hemorrhoid is cut off below, leaving sufficient stump to securely retain ligature in place.

After the internal hemorrhoids have all been ligated, any folds of anal skin that are clearly redundant should be removed. If these ragged tags are allowed to remain they may prove of considerable annoyance to the patient, by his inability to properly cleanse the anal region after defecation. This persistent fecal soiling often causes pruritus in persons predisposed to its occurrence, and when inflamed they are excessively painful and render sitting and walking difficult. Their size and location should be made out before beginning the operation, because after dilation of the sphincters and the manipulations incident to the operation it is often difficult to estimate clearly the amount of tissue that requires removal.

After infiltration with a one-tenth of 1% solution of cocaine, they may be easily and painlessly removed with a pair of curved scissors, and the resulting wound allowed to heal by granulation. If the base of the external hemorrhoid is quite broad, it is best to unite the edges with a catgut suture; yet this is rarely necessary because of the constricting action of the corrugator cutis ani muscle. When the folds are very numerous, not more than three should be removed at one time, lest anal contraction take place.

AFTER-TREATMENT.

The after-treatment of these cases is more important than is generally supposed. The bowels, as a rule, should act on the second day, and daily thereafter, a suitable laxative being resorted to as required.

The anal region should be kept scrupulously clean, and protected by wearing an anal pad of sterilized gauze. After the ligatures have separated on or about the fourth day, stimulating topical applications of 15% balsam of Peru in castor oil, Ichthyol and glycerine, 15% should be made to the anal canal to secure rapid healing of any lesions that may remain.

Should there be much soreness or pain when at stool or otherwise (which is rarely the case), it can usually be relieved by the injection of an ounce of olive oil at night, which, aside from its local beneficial action, will secure an easy movement of the bowels the following morning.

CONCLUSION.

In conclusion the writer wishes to repeat again that the great majority of cases of hemorrhoids, of whatever variety, can be treated radically, satisfactorily, and with but little discomfort to the patient, without the use of general anesthesia. The practice of operating in one's office is greatly to be deprecated, except in cases of mild severity, where only one or two piles are to be removed.

While in a number of instances rather extensive operations have been performed in the office, and no serious mishap has ever occurred, yet much unnecessary discomfort and even suffering was occasionally caused by spasmodic contractures of the sphincters, due principally to allowing the patient to be up and about immediately after an operation of this importance.

As a result of certain published articles on the subject of regional anesthesia in the treatment of ano-rectal diseases, the impression prevails among many that it is only necessary for patients suffering with hemorrhoids to drop into a specialist's office, have his piles removed and then proceed down town to take up his usual daily routine.

To illustrate about what may be expected in the way of detention from business or social obligations, the histories of five rather typical private cases that have recently undergone operation are here recited.

CASE I. Mr. A., fifty-six years of age; occupation novelist; residence, New York City; referred by Dr. F., of Boston. Because of his great dread of general anesthesia, he had been treated "off and on" for the past six years by the method known as punctate cauterization

with the galvanic cautery, although advised to have a radical operation. The treatment with the cautery knife had resulted in the partial destruction of two of the hemorrhoids. When I saw him he was suffering much pain and soreness caused by the internal hemorrhoids being strangulated and firmly grasped by the sphincters. The peri-anal folds were swollen and edematous. The external sphincter rigid and hypertrophied. Immediate operation under local anesthesia was advised and at once accepted.

Operation at private hospital. The sphincter muscles were prepared for dilation as previously described. After divulsion, the right anterior, the right, the left and left posterior piles coalescing were removed by three separate ligatures.

Three large folds of edematous redundant skin (external piles) were cut away. This patient suffered no pain during or after the operation though there was soreness about the anal region for a week. He was in the hospital ten days, though up and about after the first three days. This case is cited especially to controvert the opinion held by some, that inflamed and strangulated hemorrhoids should be treated by palliative measures and the radical operation undertaken later after the acute symptoms have subsided. It has been my experience that the patient loses as much time from temporizing, with rest in bed, lotions, etc., as would be required for a radical operation which would spare him much suffering.

CASE II. Mr. B., age thirty-one; traveling salesman. Diagnosis: Internal hemorrhoids with anal fissure. Duration, two years. Considerable pain when at stool which lasts for one-half hour after. Very little hemorrhage. Protrusions from anal orifice at each act of defecation. Very constipated. For the past two years has been using ointments night and morning.

Examination: External sphincter rigid and hypertrophied. Posterior linear ulcer at anal margin extending one-half inch upwards. Three internal hemorrhoids.

Treatment. At my office under local anesthesia the sphincters were thoroughly dilated and the three internal hemorrhoids removed with separate ligatures. The fissure was excised. There was no pain during the operation. The patient was sent home in a carriage and walked up two flights of stairs,

to which may possibly be attributed a severe throbbing pain which lasted three hours, requiring the use of opiates. Three days later he called at my office feeling very comfortable and was able thereafter to attend his usual duties at a down-town house. The operation was on Saturday and only one day's detention from business resulted.

CASE III. Mr. N., journalist, age thirty-six. Referred by Dr. M., of Allston. He had had protruding internal hemorrhoids for ten years.

Rectal examination: External sphincter contracted but easily dilated. Large right anterior pile and three smaller ones, two of them coalesced.

Operation in office. The sphincters were easily dilated without previous anesthetizing, and the internal hemorrhoids removed with three ligatures. Absolutely no pain during the operation. For a short time after the operation he complained of an ache about the anus, and of a weak feeling but soon returned to his home with Dr. M. in an automobile. Five days later he reported at my office feeling very comfortable, from which day he resumed his usual work.

CASE IV. Miss M., age forty-one. Referred by Dr. B., of Boston. In 1897 she underwent ether operation for anal fissure. At the present time there are four internal hemorrhoids.

At a private hospital the hemorrhoids were removed with three ligatures. The sphincters were easily dilated, as much as was required to place the ligatures in position, without resort to reginal anesthesia. No pain during and but little following the operation. She remained in the hospital seven days.

CASE V. Mr. C., age sixty-nine; real estate business. Referred by Dr. G., of Boston. Diagnosis: Internal and external hemorrhoids. Operation at residence. Sphincters dilated without anesthesia. Two internal and the two external hemorrhoids removed. No pain during or following the operation. An annoying diarrhoea set in on the fourth day which retarded his convalescence somewhat. Notwithstanding this complication he was able to go to his office in nine days.

After operation confinement to bed is unnecessary; in fact, these cases do better if on their feet somewhat, but they will hardly be able to attend to their usual avocations in

less than three or four days to a week, depending on the personal equation of the patient.

At the Boston Dispensary it has been my practice to operate upon nearly every case of hemorrhoids, no matter how extensive, and the patients report daily thereafter for treatment, without seeming to experience any great inconvenience; but the application of these methods to more susceptible private cases has not always proved equally satisfactory.

The operation is radical, and the only argument of importance I have ever heard against the ligature operation, is that it causes considerable pain until the stumps have sloughed away. This is due to the fact that the hemorrhoid has not been carefully freed from its muscular attachments, but has been strangled almost en masse, without the previous dissections which I have described.

It is quite impossible to conceive that a ligature tied around the pedicle of a hemorrhoid would cause any more pain than if it were removed by any of the other methods commonly employed.

THE BATH TREATMENT OF TYPHOID FEVER IN PRIVATE PRACTICE.

By Simon Baruch, M. D., New York City.

If the choice of title of this paper devolved upon myself it would read "The Bath in Typhoid Fever." It has long been my contention that the expression "treatment of fever" should be relegated to the past, because the modern physician no longer treats the fever, but the patient.

In the management of a case of typhoid fever the chief aim of the well-informed clinician is the enhancement of the patient's resisting capacity to toxemia which menaces his life. Abundant observation at the bedside made by many physicians in hospital and private practice in various countries has established the fact that the chief lethal element in this disease arises from toxemia, and that in proportion to the intensity of this toxemia is the prognosis of each case; the extent to which the vital organs are affected by the toxic agents set free in the blood by the pathological factors introduced into the system governs the outcome of the case. The damage sustained by

the nerve centers which preside over the life-sustaining functions of the organism is the measure by which we are forced to gauge the mildness or severity of a case of typhoid fever.

In the mild cases the action of the toxic material is as obviously upon the nervous system as is in the more severe types, as is evident in the apathy which finds expression in headache, dullness of intellect, shallow respiration, diminished pulse tension and depreciated secretory and excretory action. When the system is overwhelmed by these toxic agents the manifestations pointing to involvement of the central nervous system are more pronounced; delirium, coma, vigil, subsultus tendinum, cyanosis, elevated temperature, stupor, cardiac failure indicated by feeble, dicrotic, and rapid pulse; hypostatic congestions, sleeplessness, renal insufficiency with its resulting diminution in the quantity and toxicity of the urine—these point unerringly to a seriously crippled nervous system. This is the broad gateway leading to the dissolution of the vital machinery. To inhibit the latter, we must sustain, refresh, nourish the former; whenever and wherever the nervous system is threatened the medical attendant must be alert and ready to meet the attack. This is the lesson of the bedside as I have learned it from many a hard-fought battle with this, alas but too prevalent, disease. I have learned it sadly from many a defeat, and I have learned it gladly from many a victory.

How much the bath has contributed to my victories during the past 25 years of practice and how much previous unfamiliarity with this remedial agent has led to defeat is so deeply engraved upon my mind that I would be derelict to duty as a physician were I to permit any occasion for expression of the plain and incontrovertible experience it has been my privilege to gather in hospital and private practice to pass. That I was long a sceptic on the value of the bath in typhoid fever may not seem a correct statement of fact to those who have so often heard of me in these halls as a persistent and ardent advocate. My conversion was not sudden, but an evolution of bedside observation. Well do I remember a note from the lamented Brand of Stettin in which he twitted me with the statement I had made in the Academy of Medicine that "the Brand method may be adapted to the robust German soldier, but that the American would not be a favorable subject for so heroic a measure."

It is erroneous habit of the physician to trust entirely to experience in accepting a therapeutic agent. Hippocrates himself has said "Art is long, life is short, judgment difficult, experience fallacious." The dark ages of medicine were the times when experience alone was the guide to practice; the brilliant achievements of modern medicine are coeval with the rise and progress of enlightened pathology, and a therapeutics based upon the latter and upon a correct rationale of the action of the remedies applied.

So long as the principal testimony in favor of the bath was derived from the statements of the empirics who boasted of their experience with water, it failed to appeal to my judgment. When, however, Brand demonstrated that the action of the bath in typhoid fever was based upon a rationale derived from its physiological action as a thermic and mechanical irritant—a rationale first insisted upon by Winternitz and his school—and when this clear rationale was substantiated by large statistical material, the evidence became overwhelming that the bath constituted a most important therapeutic agent in this disease.

Although the cold bath had long been applied in fevers with more or less success (usually the latter), it remained for Ernst Brand to insist that the cold bath was not valuable because of its antithermic effect, but by reason of its action as a sustaining agent of the crippled nervous system, and that when properly executed and *applied early* the bath was a prophylactic against all the lethal conditions which existed in typhoid fever. It was Brand who insisted, despite the strongest opposition and scepticism, that treating the lethal complications arising in this disease symptomatically was a fatal error, to which the enormous mortality of the disease may be traced quite often. It was Brand who taught the fatal fallacy of treating temperature elevation by the bath or otherwise; it was he who taught us the inestimable value of friction during the bath. For these and other reasons upon which the enormous beneficence of the Brand method and its superiority over all bath methods is based, for the persistence, earnestness, courage, love of his kind, for the polemic ability and logical brilliancy with which he battled for his method for 30 years, Ernst Brand is entitled to be regarded as one of the benefactors of mankind.

While I still regard this well-thought-out and practically-demonstrated method as the ideal treatment of a large proportion of cases of typhoid fever in private practice, and while I still believe that this method is more applicable in private than in hospital practice, by reason of the latter usually being admitted too late to obtain its chief advantage—early application—I am free to confess that there are very many cases in which a strict execution of this systematic bath method is impossible or not indicated. If the principles of the method are understood and followed, any method of cold bathing may be usefully applied. What are these principles?

It is a trite and long-accepted fact in physiology that cold is an irritant to the sensory terminals in the skin, and that, like all irritants, when applied in mild form, it stimulates these sensory terminals, and when applied in more intense form it depresses, and that the stimulation or depression evoked by cold is conveyed to the central nervous system, and thence reflected upon the organs which derive their functioning capacity from the latter. A brief application of cold water to the skin acts as a stimulant: a prolonged application acts as a depressant; both effects being in exact proportion to the degree of cold and to the extent of surface attacked. The truth of this physiological principle, and the correctness of the practice based upon it, is daily exemplified and clearly demonstrated in the familiar management of the still-born infant. In a mild case simple sprinkling with moderately cold water suffices to arouse the flagging vitality; in more pronounced cases a dip into cold water restores the almost inanimate creature; and, if these measures are inadequate, we resort to still colder water, or we render the skin more sensitive to the latter by alternate dipping into water of a high and low temperature. The resultant effect of these applications is one of the first lessons the medical student learns in physiology and therapeutics, and yet *mirabile dictu* their self-evident application in the management of the typhoid fever patient is of comparatively recent date, and still calls for frequent insistence. For twenty years have I emphasized that these trite physiological principles are the basis, and form the rationale of all water treatment in all diseases in which it is indicated. It is not men, nor is it methods, that I advocate, but principles, accepted physiological principles. Applied to the manage-

ment of the disease under consideration tonight, what effects are evoked by the cold bath? Is so heroic a measure expedient or necessary when milder measures have proved effective? These are important questions, and they are answered by strict application of the principles involved and briefly recited above.

Granted that they are correct, and that the reflex stimulating effects of cold water elicited in the still-born infant and its similar effect in syncope are undeniable as they are in that other and essentially different toxic depression of the nervous system encountered in opium poisoning, it cannot be difficult to appreciate how the stimulating and sustaining effect of properly graded or dosed baths, or other water procedures, arouse the blunted nerve centers in typhoid fever, how the whole machinery of the depreciated organism is thereby revived, how the apathetic countenance brightens, the eye resumes its lost luster, how the breathing is deepened and the blood thus better oxygenated, how the heart, enfeebled by the toxic depression of its nerve supply, responds under the refreshing impulses, and how the secretions and excretions are thus revived.

There are other equally important results arising from the local thermic stimulation of the cutaneous arterioles, enhanced as they are by the mechanical stimulation of friction, which must never be omitted in any cold application.

It has been shown by several laboratory experiments that the Eberth bacillus not only exerts its baneful depressing influence upon the central nervous system, but that it manifests a somewhat specific depreciating and enfeebling influence upon the peripheral arterioles. To the latter may be ascribed that relaxed and sluggish condition of the cutaneous arterioles which is manifested in the deadly pallor of the skin of the trunk, in feeble and dicrotic and compressible pulse, in the hypostatic congestions, ulcerations of Peyer's glands, etc. These are the result of more or less cardiac inadequacy; the resistance at the periphery being diminished, the vasomotor system is crippled, thus suffering at both ends. The heart is called upon to compensate for this failure at the periphery by increased action; the pulse is accelerated, but the arteries do not fill, as is but too evident in the compressibility of the radial artery.

In mild cases the self-regulating machinery of the organism readjusts itself; in severe cases heart failure, with all its dire effects, ensues;

stimulants fail because the nerve centers have lost their responsive capacity, and the physician stands appalled in this trying emergency; too often is he helpless to rescue the patient who, perhaps, in the earlier stages has been promising of better results.

In such emergencies I have long ago asked myself the question, "Cannot these fatal heart failures be prevented?" Brand has answered this question in the affirmative. The ideal cold bath devised by him is a preventive measure, and not a symptomatic one. Cold baths must not be regarded as cooling procedures—a fallacy arising from regarding hyperpyrexia a prominent cause of death in typhoid fever. The latter has been proven to be due to the toxemia. *Cold baths prevent lethal complications by reason of their sustaining effects upon the central nervous and circulatory systems.* Let this truth become the ruling idea in typhoid fever, and let the accepted truth that therapeutic results are in proportion to the dosage of the remedial agent be added, and the aggregate outcome of this much to-be-desired consummation will be a rational application and consequent cessation of disputes about modes of bathing. Whether the ideal Brand bath is to be adopted in the concrete case, or some milder method, whether so-called sponging, ablution, affusion, compresses, packs, whole baths or half baths, brief or prolonged, higher or lower temperatures are to be applied, must depend upon the individual case.

There must be reaction, that is, refreshment, and not depression, following each application; the sum total of these must inure to the sustenance of the depreciated nerve centers, and they must be adapted to the case with the same intelligence as are diet and medication. By food, nutrition is sustained to prevent starvation; by baths, nerve force must be sustained to prevent exhaustion. Both are prophylactic measures to enhance the patient's resisting capacity. The strict Brand method has proven its efficiency by the largest and most reliable statistics extant in medicine, and it is based upon a correct rationale; for this reason it became the leading treatment in hospitals. It has not remained popular, because its splendid reduction of mortality was obtained first in military hospitals, in which its most important elements—early application and systematic execution—were not difficult. When this method was applied on a large scale in civil hospitals, the same results were not attained,

because in the latter typhoid cases are usually admitted after the fifth day, oftener after the first or second week. Nevertheless, the cold bath has proven an efficient aid, changing the mortality statistics and affording such comfort to the physician, who modified it in accordance with the stage of the disease, which, as is well known, changes the responsive capacity of the patient. This is the reason why the Brand bath has fallen into desuetude in Germany. Its strict application is not adapted to the latter stages of the disease, unless it has been used with good results in the early stages. And this is the reason why this bath is better adapted for private than for civil hospital practice.

If the principles here enunciated regarding the physiological action of the cold bath, and its prophylactic nerve-refreshing and heart-sustaining effect are borne in mind by the physician, he will begin with mild measures—ablutions, affusions, baths of 90° F. reduced every four hours one or more degrees, until the temperature of the Brand bath, 70° F., is reached. And if the bath is administered with friction for fifteen minutes, and repeated only during the waking hours every four hours; in fact, if the rules laid down in works on hydrotherapy were studied and followed as are the rules of other therapeutic agents, there would remain no reason for disputing the practical results of the bath treatment in typhoid fever.—*Medical Record.*

ANTIPHLOGISTINE VERSUS OPIUM. With a willingness, which frequently overrides their better judgment, some physicians resort to the hypodermic needle indiscriminately, and, in too many cases, a greater evil has followed the lesser one. The free habit of using morphine or some other form of opium is not a judicious practice, and for several reasons. The exact seat of an inflammation, for instance, might become difficult to locate, and thus a clear diagnosis interfered with. But the greater objection to the use of opium is the possibility of adding a recruit to the ever growing army of habitués. Every time there occurs to a doctor the apparent need for opium he should deliberate well before resort is had to the needle. If, after careful consideration, his best judgment advises the use of opium, it should be given in some form by mouth. If the needle is used the patient at once knows what he is getting, but he is not so likely to acquire this information if it be given otherwise. For relieving the pain of the inflammation Antiphlogistine will easily take the place of opium. The relief following may not be so prompt and so complete, but the edge of the suffering is taken off within a short time, and soon the patient is in a comfortable condition and has escaped the possibility of becoming addicted to a drug. There is not the likelihood that a patient, relieved from pain by it, will begin eating or using Antiphlogistine in any other way—which likelihood is the greatest disadvantage of opium. In the future let your morphine become stale, and keep your Antiphlogistine fresh—use it in inflammation.—*The Medical Era.*

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EDITORIAL.

State inspection and regulation of slaughter houses is beginning to be agitated somewhat. Federal legislation in regulating interstate trade has gone as far as it can go and it rests with the states to protect their own markets from diseased animals killed within their borders. In dairy states which like our own are more or less widely infected with bovine tuberculosis one of the results of the federal laws is to increase the danger by throwing more local meat on the home markets than ever before. The government granted to the numerous small abattoirs all over the state temporary exemption from the provisions of the inspection law allowing them to carry on their business unrestricted for a short time until inspectors could visit and pass upon them. This inspection is now being made and reveals conditions which rival those found in the large stock yards at their worst. As a result most of these places are losing their exemption papers. What business they do hereafter must be en-

tirely in supplying local trade. Some of them will cease to exist but more will continue to carry on the business of slaughtering and the results of their activities will find their way into the local meat markets. The danger from these small country abattoirs is great. Vermont is badly infected with bovine tuberculosis. Most of these animals, either through the ignorance or cupidity of the owners, finally bring up at some of these slaughter houses to be killed for beef. Some of the worst infected ones which happen to fall into the hands of honest men are probably destroyed but the temptation to "trim" these creatures and sell them is great. No one can detect the carcass of a tubercular animal if the parts showing the lesions are cut away. This fact adds greatly to the problem of coping with the situation. Our present laws give the health officers and the members of the state board of health authority to visit slaughter houses and meat markets and condemn and have destroyed the meat of diseased animals but these officials in a casual inspection will never find such meat. That inspection may amount to anything it is essential that the inspector see the animal killed and dressed. Obviously under the present lack of restriction in this business this is impossible. It would seem that eventually there must be some method of regulation. Licenses must be issued by state or town and some adequate method of inspection must be provided. All this will require time and money but if there is danger to human life in consuming the meat of diseased animals it will be worth the investment. The writer deplors any attempt to arouse popular alarm which may result in hasty and illconsidered legislation but these are questions which should receive careful consideration by all intelligent citizens. Medical men should be better prepared than others to judge intelligently of the dangers of the present conditions and the wisdom of remedial measures.

The St. Johnsbury meeting of the Vermont State Medical Society which occurred October 17 and 18 was characterized by the fact that with the exception of one paper, the entire program was carried out. Furthermore the papers were all of a high grade of excellence and all provoked much valuable discussion. The fact that most of the men selected to open the discussions were absent was regrettable but in spite of this fact there was no lack of interest. The discussion is always the best measure of the general interest which a paper arouses. Secretary Gorham is to be congratulated on the success of his program.

The House of Delegates ransacked the large amount of business which faced it with great despatch. Perhaps the most important action taken by them was that making it obligatory for members to pay their dues each year in order to retain their good standing. The old rule which allowed a member to be three years in arrears led to endless confusion between State and County Societies. The fee is so small, that carelessness alone can account for failure to pay. It now behooves the County Secretaries to give to each member early notice that unless the dues are paid in time to be turned over to the State Society by Oct. 1st, the name will be dropped from the list of active members and consequently from the privileges of the American Medical Association.

The next meeting of the Society will be in Rutland and should be a rouser.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

TRANSIENT GLYCOSURIA.

The opinion has recently been expressed by Van Noorden that transient glycosuria, the reason for which does not obviously lie in a diet excessively rich in sugar, has a tendency to be followed by diabetes. Undoubtedly this condition follows in a number of cases. Roper and Barringer (*American Journal of the Medical Sciences*) endeavor to show

how many and which cases of transient glycosuria are followed by diabetes. Using the records of a life insurance company, they selected 20 cases showing a glycosuria of 1 per cent. or less during 1900 and 1902. In 1906 all but two patients were in apparent health, one having a chronic nephritis and the other tabes. Of five patients who showed sugar in the urine previous to 1900, two had developed a constant slight glycosuria and could be called diabetic, although the glycosuria was the only symptom present. Of the 15 in whom sugar was first found in 1900 and 1901, two had developed a constant slight glycosuria, but showed no other diabetic symptoms. Thus four developed mild diabetes in from five to eight years.

Barringer and Roper show, furthermore, that there exists a relation between spontaneous transient glycosuria and constant glycosuria. When 100 grams of glucose or cane sugar was given to a healthy individual usually no glucose was found in the urine, and it ordinarily required 150 to 200 grams of either substance to produce glycosuria in a normal individual. Hence the production of glycosuria by the ingestion of 100 grams would prove conclusively that the assimilation limit for glucose was lowered. Eighteen of the 20 patients received 100 grams of glucose three hours after breakfast, and their urine was examined two or three hours later, no food being taken in the interval. The four diabetics showed an alimentary glycosuria of from 1 to 3 per cent. Five others showed from 1 to four-tenths per cent. glucose, while two showed traces, but not enough for quantitative analysis. In seven patients the urine examinations were negative. Thus 50 per cent. showed a disturbed sugar metabolism five years after the first discovery of sugar, four were surely diabetics, five were probable diabetics and nine were surely non-diabetics. Eighteen of the 20 were examined again after sugar had been first found, and 11 showed a glycosuria on the second examination. These 11 included the four diabetics and four of the five probable diabetics, which exemplifies the prognostic value of a repeated detection of traces of sugar. All but one of the nine cases which showed alimentary glycosuria also showed sugar on repeated examination. It is thus seen that alimentary glycosuria arising from glucose or cane sugar, provided the test is properly conducted and repeated at intervals, affords an indication as to whether the spontaneous transient glycosuria will develop into diabetes.—*Medical Review of Reviews.*

THE SIGNS OF REAL DEATH.

W. E. TAYLOR (*Atlanta Journal-Record of Medicine*) says that Dr. Icard has discovered a test or proof of death which is not only an early one, but is simple and infallible. Putrefaction, as he has mentioned, is one sign besides the permanent cessation of circulation, which is a positive sign of death. The circulation may apparently cease and then resume again, and its detection is difficult. Putrefaction begins only when life ceases, and it is toward the earliest possible detection of this that the author bends his energies.

Decomposition begins, in all probability, in the lungs, and it is at this point that it is most easily detected. The first products of decomposition are the sulphides of hydrogen and ammonium which are liberated in considerable quantity from the free and moist surface of the respiratory tract and escape from the nostrils if the mouth be kept closed. There are no sulphurous gases found in the body during life, either in the bowels, stomach, or even

in foetal, bronchial or lung conditions at least sufficient to give a test for the same. After death the quantity is very large, and a test can be made and the presence of gas, as well as the absence of life or any probability of its return, proven to the naked eye of any observer.

Dr. Icard resorts to a very ingenious and simple method to detect this gas. He takes a piece of filter paper moistened in a neutral solution of lead acetate in two parts of distilled water and places it either in or over the nostrils. The hydrogen sulphide gas escaping and coming in contact with the lead forms black sulphide, blackening the paper, and thus making an indelible sign of death. In the absence of the lead acetate solution a freshly-brightened piece of copper or silver money will serve as well, and the blackened or tarnished stain of silver or copper sulphide is left upon the coin. These signs are easily obtainable within from 12 to 36 hours after death, according to climatic conditions. The author thinks that this test should be resorted to in all cases before a burial permit is given, and recommends that its observance be compelled by legal measures.

HARBOULT, (*Therapeutic Medicine*, Sept. '07) advocates the use of undiluted tincture of benzoin as a local application in the treatment of catarrhal conditions of the nose and throat. He describes the treatment as follows:

Benzoin is a strong antiseptic, it is very irritant to the membrane when first applied, having almost the same effect though not quite so severe as silver nitrate. It does not penetrate the tissues so deeply; the alcohol in the tincture, when brought into contact with the saliva, is diluted and a precipitate is formed on the membranes in the form of a thick whitish film, which acts as a protection and also helps to keep the drug in contact with the parts for some little time since the pharyngeal secretion will not readily wash it off.

In such cases as tonsilitis, inflammation of the pharynx and of the larynx and vocal cords, it is an ideal local application when applied on a cotton swab after the parts have been cleansed with a mild spray. The spray I use as a cleansing solution contains boric acid, eucalyptol, methyl, salicylate and thymol diluted in water. This has the effect of not alone cleansing the membranes, but it acts as a mild stimulant. I then apply the strong tincture of benzoin on a little cotton attached to a throat applicator.

In parenchymatous tonsilitis, tincture of benzoin will bring about results the same as silver nitrate. Applied directly to the vocal cords it acts not alone as an irritant, but also as a strong stimulant. When first applied the drug causes a sensation of burning—an irritation that will cause the patient to cough perhaps. After a moment this is followed by a sense of warmth and ease, the irritation quickly disappears and is superseded by a soothing effect.

The film that is formed on the membranes by precipitation gradually becomes washed off and mixed with the secretions and saliva, and the congestion of the parts is gradually reduced.

THE STOOLS IN MUCOUS COLITIS.

H. D. WILSON (*The Edinburgh Medical Journal*, July, 1907) considers the examination of the faeces in this affection of great importance. In color they vary in different cases and from time to time in the same patient. It is of frequent occurrence that they

are abnormally pale and may even be clay or putty-colored, although the patient may show no signs of jaundice. Occasionally they are very dark. It is of interest to note that when a course of intestinal irrigation is administered to a patient whose stools are unusually pale, the color of the faeces gradually improves, and sometimes greenish stools are passed. This occurrence often coincides with marked improvement in the condition of the patient. The shape of the faeces is of some importance. It is common to find constipation present, and they may be passed in hard masses or lumps, or hard old faeces passed with softer motion. They may be passed in the form of a smooth cylinder or may be flattened or ribbonlike.

Loose actions, which may be a continual source of annoyance because of their frequency, rarely show the characters of an ordinary diarrhoea motion, but as a rule consist of watery material, mucus and small bits of faeces. Sometimes in response to an urgent call to stool nothing is passed but mucus. It is not uncommon to find that mucus in the stools is present without the patient being aware of the fact, and may be unobserved unless carefully looked for. This is more likely to occur where it is coated over with faeces or forms a covering to them. In the former condition it may be necessary to break up the motion to find it; in the latter it is more readily seen if the faeces are floated in water. Even after active purgation little mucus may be found, but internal douches may show it to be present in large quantities. The appearance of mucus in the stools may also be intermittent, careful examination may fail to show it, and yet a little later it may be passed in considerable amounts. Mucus from the bowel may be seen in several forms. It may be of frothy, semi-fluid or jellylike consistence, or in cast-like or membranous material. It is often seen as strings and shreds. Its color varies. It may be semi-transparent and whitish, and thus has been mistaken for pieces of tapeworm. Sometimes it is of much the same color as the faeces. Casts vary much in size, and from 1 to 10 inches in length, but cases are recorded in which much longer ones have been passed. They may be cylindrical, although it is much more common to find them in a broken-up state. Chemically casts and membranous material passed by the bowel are found to consist chiefly of mucus. It is doubtful if they ever contain fibrin. Microscopically, they show a hyaline matrix in which are found many cells of cylindrical epithelium in a more or less broken-up state. "Intestinal sand" is sometimes passed. Undigested food is seen in the stools with comparative frequency; when thus passed it is often found to consist of pieces of meat, fish and vegetable, and may look as if apparently unaffected by the digestive process.—*Medical Review of Reviews*.

PARANOIA.

C. W. BURR, Philadelphia (*Journal A. M. A.*, June 1), says that paranoia is one of the most interesting examples of the degenerative insanities; he has never met with a true paranoiac with a reliable family history who did not show some ancestral defect, and he never knew a boy or girl of biologically good family history to develop the disease. Its essential symptoms are intense egotism, delusions of persecution and of grandeur which are always systematized and always reasoned about, absence or perversion of the moral sense and an apparently strong but really weak intelligence. Minor symptoms are hallucinations, falsifications of memory and sexual perversions. A

negative symptom of importance is the absence of signs of physical disease of either the central nervous system or of the abdominal or thoracic viscera. Anatomic abnormalities, the so-called stigmata of degeneracy, according to Burr, are not more frequent than in the general population, though individual patients sometimes show many marked signs. Although in the majority of cases the patient is not recognized as actually insane till sometime between the twenty-fifth and thirty-fifth years, the onset is really a slow one. There is a prodromal period of years and the abnormal beginnings are apt to appear at puberty or during adolescence, in change of character and disposition, etc., and finally, usually in the twenties or early thirties, marked signs of insanity appear in delusions of suspicion and of importance, largely determined in their nature by education and environment. Those of persecution usually come first and those of grandeur are used to explain the persecution. Whatever the delusion may be, it is reasoned about, and the reasoning, though faulty, superficially may appear logical. Almost always there is some slight truth used as a basis of the delusion and the plausible patient may sometimes impose on kind hearted persons so as to lead them astray. The delusions are permanent, lasting for years till the mental feebleness becomes marked. From the start there is mental weakness, but not a true dementia till very late. There is a steady deterioration of the moral sense that may lead eventually to criminal acts. Burr distinguishes between the paranoiac and the mattoïd; the latter he defines as the imbecile dreamer of great dreams without power of accomplishment. The recognition of paranoia is not always easy because many cases are not typical, and some are merely aborted and fragmentary. There is a wide borderland and many inhabit it. Some men of genius present evidences of partial paranoia, some of them have been distinctly delusional. There is unfortunately, also, what is called secondary paranoia, though in these cases there is a stronger element of dementia and hallucinations play a more important part. Some instances of the so-called paranoid type of dementia præcox, Burr thinks, may be and probably are, very rapid cases of true but atypical paranoia. In conclusion he speaks of the medicolegal importance of the disorder, and says that the physician's duty in court cases is simply to discover the mental condition of the patient; the questions of responsibility, competency, etc., are for the judge and jury to decide.

LEGAL MEDICINE.

LIABILITY OF PHYSICIANS IN CASES OF MALPRACTICE.

A physician may refuse any case, and is not obliged to treat any person applying for his assistance. "No question can exist as to the legal right of the physician to decline to take charge of the particular case, unless he be an officer of the government charged with specific duties which he thereby violates" (Wharton on Negligence).

Undertaking the management of a case, the physician impliedly under the law contracts that he possesses ordinary skill and experience. The degree of skill cannot be fixed by any rule, and is not a question of law, but one for the jury to decide, and circumstances determine it.

He also impliedly contracts to use care and diligence in the management of the case. Bandaging, dressing, diet or whatever, the neglect of which might cause serious trouble or perhaps death, must not be neglected.

Under the law he does not become a guarantor of cure, and if he does his best, with due skill and

diligence, he cannot be held liable if bad results follow. He will be held strictly liable, however, if he contracts to cure his patient and failure follows, and will not be permitted to plead unforeseen contingencies, all of which the law supposes he took into consideration in making such contract.

Gratuitous service, whether understood beforehand or not, does not exempt the physician from damages.

Having undertaken to treat a case, the physician is liable for any damages which may result from improper discontinuance of his services; that is, he must give the patient reasonable notice and permit him to secure the service of another physician.

An autopsy cannot by legal right be made without the consent of the next kin—the husband or wife of the deceased, or, after them, the one next nearest related. Authorities are quite clear on this proposition, that the next of kin have the right to immediate possession of the body, and that it must be delivered to them in the identical state in which it was when the breath left it. The only exception is where death has occurred under suspicious circumstances, in which case the coroner has a right to make a post-mortem examination.—*Claude S. Wilson in Medical Brief.*

SURGERY.

THE CONTAGION OF CANCER.

BUTLIN (*British Medical Journal*) tells us that the accumulation of knowledge of the last few years enables us to formulate, much more definitely than we could before, the conditions under which cancer is likely or unlikely to be accidentally communicated from one human being to another. All cases of reputed contagion of cancer in which the disease is not of the same variety must be unhesitatingly rejected. Cases must not be accepted where there is no evidence that the affected parts of the two individuals were from time to time in contact. It is extremely improbable that contagion would take place from a covered cancer, such, for instance, as a cancer buried in the breast, or that the disease could be implanted in a part of the covering of which has not been broken. These exclusions largely limit the number of possible cases of contagion, and the limitation is still greater when it is taken into account that sepsis of the tumor or of the broken part which comes in contact with it is an almost absolute obstacle to the success of accidental implantation. For it is notorious that cancers which are exposed for the most part rapidly become septic and ulcerate and suppurate. The best evidence of the contagiousness of cancer is furnished by the occasional examples of successful implantation in different parts of the body of the same individual. Such cases have long been known under the name of autoinoculation. Probably the best example is where a squamous celled carcinoma on one labium of the vulva of a female affects the opposite one, whether it be the labium majus or minus. It affects the opposite side of the vulva by direct contiguity as surely as a condyloma. Time only is necessary and a certain amount of moisture to make it invariably the rule. In conclusion, the writer gives details of fifteen cases of autoinoculation of cancer, undoubted or apparent. For some years past surgeons have been more cautious than they used to be in dealing with cancerous growths, and many cases have been recorded in which there was reason to believe that recurrence was due to implantation during the implantation rather than to imperfect removal of the disease. Cancers should not be cut into un-

less for diagnosis, and the wound should be tightly closed before the actual operation is commenced. The instruments which were used for the purpose of diagnosis must not be used again until they have been boiled. Exposed or ulcerated cancers should not be pressed against or dragged across raw surfaces made in the course of the operation. And care should be taken that breaking down cancers should not be opened during operation. If they are opened by mischance means should be taken to cleanse the surface of the wound and to destroy the exuded contents of the cancer cavity.—*Charlotte Medical Journal*.

OPSONIC TREATMENT OF SURGICAL DISEASES.

A. P. OHLMACHER, Detroit (*Journal A. M. A.*, Feb. 16), thinks that possibly Wright's comparatively simple theory of opsonins and its practical application has been rendered needlessly confusing to the average practitioner, and gives his own experience with the use of bacterial vaccines, preferably autogenous, in various surgical conditions. While not neglecting to take the opsonic index when practicable, he was compelled to rely largely on the clinical manifestations as a guide to the repetition and size of dose, always endeavoring, of course, to give the injections at the right time, when the positive phase is beginning to fall, and not in the negative phase. As Wright points out, the great causes of failure in previous tuberculin treatment was the giving of too large injections and too frequent repetition of the dose, causing a marked negative phase and keeping it up. Ohlmacher thinks that his results might have been even better than they were had he been able to make more systemic opsonic determinations, which often show a fall of resistance before the symptoms indicate it. He has had remarkable success in various types of staphylococcus infections, obstinate cases of acne and furunculosis, impetigo, palmar abscess and in a very distressing case of what had been called psoriasis, but which he thinks was an extraordinary case of staphylococcic dermatitis, and which yielded rapidly to opsonic treatment with an autogenic culture of staphylococcus aureus. He also had very satisfactory results with a case of very annoying bladder infection from the colon bacillus, similarly treated after other treatment had failed. A very striking case was one of sacculated pneumococcus empyema, in which perfect recovery occurred in seven days after two injections, following a small puncture. Ohlmacher believes that even the generally condemned method of aspiration would have been sufficient in this case when reinforced by opsonic therapy. Owing to delay in obtaining Koch's tuberculin R., the standard vaccine for tuberculous cases, his experience with tuberculosis has as yet been limited, but he has been able to obtain a strain of gonococcus culture with which he has had striking success in the treatment of gonorrhea and its complications, including gonorrheal rheumatism and conjunctivitis. From what he has already seen he is prepared to say that with proper artificial autoinoculation we can obtain constitutional and local improvement in many subacute and chronic affections entirely beyond anything previously possible in medicine. He believes that we have in this method of bacterial inoculations therapeutic agents of a specificity and potency beyond anything heretofore employed in the treatment of disease, except, perhaps, the diptheria antitoxin.

CANCER OF THE UTERUS.

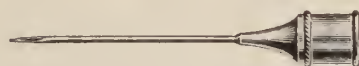
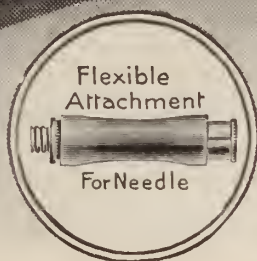
J. W. BOVEE, Washington, D. C., (*Journal A. M. A.*, September 21), speaks of cancer of the uterus as one of the worst scourges of the human race and points out that it exists in all races and, while a local disease in the beginning, so rapidly disseminates itself that treatment is generally unavailing. In spite of what is being done, its causes still remain obscure, and he thinks heredity plays an important part. Treatment must be early if it is to be successful and one of the greatest obstacles is the disinclination of women to reveal the ailment. Another is the popular misconception that uterine hemorrhages, etc., are normal to the menopause. Constant and industrious effort will be necessary to remove these barriers to success. He gives his conclusions as follows: From a critical survey of the subject of the treatment of cancer of the uterus at the present day, the following may be said: "1. We are rightly ignoring the aphorism of Hippocrates to the effect that 'it is better not to apply any treatment to deep-seated cancer, for, if treated, the patients die quickly; but if not treated they hold out for a long time.' We are striving to educate women and the general physician to the necessity of adopting means to arrive at the earliest diagnosis possible, and that followed by prompt operation of a very radical kind. 2. Special care in classification of the varieties of uterine cancer is essential to greater enlightenment concerning the history of that disease. 3. The employment of x-rays and radium are of little use and they should not be employed in cases that are diagnosed sufficiently early to offer hope of eradication by surgical means. 4. The cautery in any form should not be employed as an alternative for radical surgery, but be limited to those cases that have passed the stage in which eradication by operation seems probable. 5. Trypsin has not been tried sufficiently to establish its proper position, and as it has not been proved to be superior to radical operation valuable time should not be employed in using this remedy in cases curable by surgery. 6. Much is being done to alleviate the suffering and to postpone the fatal termination in those cases no longer amenable to radical surgical operation. 7. The experimental work on animals thus far done offers some means, opsonic or otherwise, for a more successful and less dangerous and less difficult plan of treatment for this disease than radical surgery. 8. Radical surgery affords the best results at present. 9. The vaginal route does not afford the greatest possibility for eradication. 10. We have reason to believe, with Childe ('The Control of a Scourge'), that this disease can be controlled. 11. Rooms which individuals suffering from cancer have occupied should be fumigated before noncancerous persons occupy them, and in the light of the authenticated reported cases of immediate and mediate inoculation, those caring for such patients should regard cancer as a contagious disease."

THE RADICAL CURE OF HERNIA.

W. T. BULL and W. B. COLEY, New York City (*Journal A. M. A.*, September 21), give an account of the experience at the Hospital for Ruptured and Crippled, in New York, since the introduction of the Bassini and Halsted methods for the radical cure of hernia. They call attention to the fact that the modification of the Bassini operation in the male, often called the Ferguson operation, was used by them as early as 1892, and also discuss the charge that most of their patients were children, it is true that a majority (1,034) were children, but they have operated also on 900 adult patients, and have found

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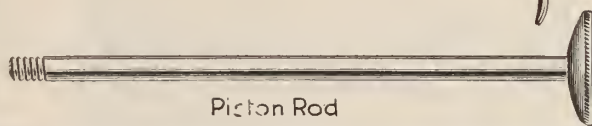
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very little difference in the results. In the 900 adults there have been 13 relapses, or 1.4 per cent. Most of the Bassini relapses occurred in direct hernia cases in which the only way of closing the opening above the pubic bone is by transplanting the cord, cases very difficult to cure by any method. Hence we have a larger proportion of relapses credited to the Bassini operation that would be the case were the direct herniæ operated on by the non-transplanting method. They emphasize the necessity of absorbable suture material and say that, dividing their cases into two periods, those before the use of rubber gloves and those after, they find a distinct improvement has followed the use of the gloves. They are also inclined to accept Hamilton Russell's view that all inguinal hernias, except the direct, are due to a pre-formed sac or unobliterated portion of the processus vaginalis. They would, therefore abandon the terms "congenital" and "acquired" and use instead the classification of total or partial funicular sacs. The authors are inclined to believe that many children under four years old with hernia can be cured by a properly applied truss and that there is little risk of strangulation in these cases, while the risk of operation is decidedly greater than in older children. If a child has reached the age of three or four years and still has hernia, they advise operation. In children over four, they do not advise preliminary truss treatment, as the chances of cure are less and those of relapse greater. Truss treatment is never advocated for femoral hernia. Umbilical hernia can nearly always be cured by mechanical means; the authors use a pad kept in place by adhesive plaster and changed every week or ten days. This treatment may have to be kept up for one or two years. Trusses are seldom of much use as they are very hard to keep in position. An analysis of the 2,032 operations for the radical cure of hernia performed at the hospital between May, 1890, and July, 1907, is given; 1902 were for inguinal hernia, 76 for femoral hernia, and the others for umbilical, ventral, epigastric and lumbar hernia. In femoral hernia the usual operation was simple closing of the femoral ring with a purse-string suture, after high ligation of the sac and removal of overlying extraperitoneal fat. The results of this method are entirely satisfactory in the authors' experience. They have operated on 114 cases of undescended testis, 25 of which were of the inguino-superficial variety which they believe to be much more common than has been supposed. The mortality in the 1,978 cases of inguinal and femoral hernia was only 5, or 0.25 per cent. Details of the fatal and relapsed cases are given.

UTERINE CANCER.

Although we have not learned the true nature of cancer, E. E. MONTGOMERY, Philadelphia (*Journal A. M. A.*, September 21), says that clinical observation has made it clear that the predisposition to malignant disease can be both congenital and acquired. In the great majority of cases, the predisposition is the result of cell changes due to prolonged or continuous irritation. The facts of cancer of the uterus seem to justify this statement; the disease is most frequent in the part of the uterus—the cervix—which is most exposed to irritation, and it is, moreover, commonest in women who have borne children, or in patients in whom it is evident that the cervix has had the opportunity to have been the seat of injury and futile efforts at repair. The prevention of cancer requires, therefore, the avoidance and removal of all sources

of all causes of irritation, including not only the direct causes but also the indirect ones acting on tissues of the organisms. The gastrointestinal toxins should be especially guarded against and lowered vitality generally combated. The earlier in life the cancer appears the more rapid its progress, possibly on account of the greater activity of the lymphatic system. From his experience, Montgomery has come to give a very unfavorable prognosis in uterine cancer prior to the age of 40. All these points are discussed by him at some length, as well as the best method of operation for removal of the developed cancer. He prefers the abdominal route in most cases, as it affords the best opportunity for inspecting the field and for extension of the operation when necessary, and also for the ligation of the larger arteries when this is desirable. The vaginal route should be selected, however, when the abdomen contains a large quantity of fat or when the condition of the patient is such as to make the more lengthy operation excessively perilous. He answers his question: "How can we lessen the mortality of uterine cancer?" in the title of his paper, by: "1. The employment of measures at confinement and subsequently to secure a healthy condition of the pelvic organs. 2. The employment of constitutional measures to prevent the formation of gastrointestinal toxins and to obviate their baneful influence on the tissues of the body. 3. The careful study of pelvic symptoms in order to insure the early recognition of malignant disease. 4. The resort to early operation for the removal of the organ involved and all the circumjacent tissues that regard for the safety of important structures, such as the ureters, bladder and large pelvic vessels, will permit."

SOCIETY MATTERS.

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SECRETARIES OF COUNTY SOCIETIES.

Addison—Geo. F. W. Willard, Vergennes.
Bennington—L. H. Ross, Bennington.
Caledonia—W. J. Aldrich, St. Johnsbury.
Chittenden—L. P. Sprague, Burlington.
Franklin—E. P. Lunderville, Richford.
Lamoille—S. G. Start, Cambridge.
Orleans—H. E. Somers, Derby.
Rutland—C. F. Ball, Rutland.
Washington—O. G. Stickney, Barre.
Windham—H. L. Waterman, Brattleboro.
Windsor—M. P. Stanley, White River Junction.



DR. GEO. H. GORHAM,
President, Vermont State Medical Society.

ANNUAL STATE MEETING

The 94th annual meeting of the Vermont State Medical Society was held at St. Johnsbury, October 10 and 11. The full attendance showed the interest of the members and although there was a conspicuous absence of those on the program to discuss the papers, yet for the most part, the discussions were full and interesting. The president, Dr. D. C. Hawley of Burlington presided, and only one paper was omitted from the program.

Several important matters were acted upon by the House of Delegates. In the first place, this body resolved itself into a permanent organization by the election of a president, two vice-presidents and a secretary. This obviates the disadvantage of putting men in charge at each session who are unfamiliar with the workings of the House. Action was taken whereby membership in the state society may not be retained except on payment of dues annually. The resolution regarding contract practice was also revived and will be voted upon next year. A temporary committee on medical education was established, to act until permanent members may be elected according to by-laws.

The list of officers shows a considerable change this year. Dr. Gorham, who has been the efficient secretary of the society for a number of years, becomes its president. His place is taken by Dr. C. H. Beecher of Burlington, Dr. J. F. Blanchard of Newport was elected vice-president, and Dr. Stone, treasurer, and Dr. J. H. Blodgett, auditor, were re-elected.

On invitation of the delegates from Rutland it was voted to hold the next meeting at that place. The question of a permanent meeting place or headquarters, with a location for a library will also be decided upon next year.

The committee of arrangements at St. Johnsbury is to be commended for the excellent manner in which the delegates were received and entertained.



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THERAPEUTIC NOTES.

HOME-MADE BUTTERMILK. It is now within the power of every household to have an abundance of that refreshing and healthful summer (also winter) drink—buttermilk. To the present time no one knew of any source of buttermilk except from the butter-maker; but now-a-days the butter-maker does his work so well that the buttermilk is entirely deprived of the delicious little grains of fat which add so much to its food qualities as well as to taste. True buttermilk, made direct from fresh rich milk, within a few hours, of the finest flavor and taste, nutritious and more excellent than the article as originally known, can now be prepared in any kitchen. This is done by taking a quart of fresh, rich milk, adding a pinch of salt and about a half-pint of hot water to raise the temperature to body heat, and lastly adding a tablet which contains a pure culture of lactic acid bacteria. Place all in a pitcher, cover with a napkin, and let stand for twenty to twenty-four hours at the ordinary temperature, and there is your perfect buttermilk. The tablets are made by Parke, Davis & Co., the pharmaceutical and chemical manufacturers of Detroit, Michigan, and are called "Lactone" or buttermilk tablets. On the farm, in the process of butter-making the cream is allowed to sour spontaneously and is then churned. The souring is the lactic acid fermentation caused by lactic acid bacteria or ferments. The difference between the new and old process is one of method and not result. In the old, the lactic fermentation is waited for and expected to occur spontaneously, with disappointment sometimes. In the new, the ferment in pure culture is directly planted in the milk, and the desired fermentation is secured without fail. In Bible days, spontaneous fermentation of dough was depended upon to leaven or lighten bread, and failure frequently attended the process, the dough putrefying instead of fermenting, and was then lost. Finally, man learned to add yeast to the dough and not to depend upon spontaneous processes, with the result of always securing the right fermentation and making a better and more nutritious bread. This new buttermilk process is a like improvement.—*Monthly Bulletin Indiana State Board of Health*, June, 1907.

CARDIAC "WABBLE": FROM VASOMOTOR INSTABILITY. The inclined-to-criticize will kindly excuse the above. In no plainer language, even if inelegant, can we designate that well-known but peculiar functional state of the circulation due to instability of action

of the vasomotors (lack of physiological balance) that calls for cactus grandiflorus, or cactin, its most desirable preparation. The indication for cactin is not the pulse telling of cardiac inefficiency and calling for digitalin; neither to the careful clinician, does it call for "the lash"—strychnine, though one or the other, often both, are not infrequently used when not needed by those who do not clearly appreciate the condition present. It is just the cactin pulse, indicating a heart that, by reason of instability or outside disturbance, is not doing, or is not permitted to do, its normal amount of work—a weak, irregular heart, calling for neither digitalin nor strychnine but a remedy that will act as a governor, restoring its normal rhythm and rate. Whether the indication be a pulse which is too fast, or too slow, too weak or too strong; if the cause is vasomotor instability, as in the tobacco heart, the heart of the drunkard, some cases of menopause, overwork, etc., no remedy in the proper condition will do just what cactin will; no remedy will so quickly restore the necessary equilibrium as this; continued as required in "dose enough," no remedy will serve you better. The mistake the unthinking make is to look for toxic effect consequent upon the use of cactin as follows the exhibition of decided doses of digitalis and strychnine, and they are therefore disappointed when even enormous doses of it are used. The laboratory man with his frogs, rats, cats and dogs says this toxic effect isn't there—and it isn't. A straight line can't be made straighter, and while vascular balance is produced by cactin, and in a state of disequilibrium it goes but little beyond this point, why should it be carried further if it could? What more does one want? Cactin is a balancer, and it is this peculiar balancing action upon the circulation, preventing regional dilation, that accounts for the wonderful and otherwise inexplicable effect of hyoscine, morphine and cactin compound (H-M-C, Abbott) as compared with hyoscine and morphine alone. Without doubt in seven out of every ten times that digitalis and strychnine are used by the less careful, painstaking and exact, the needs of the patient and the purpose of the physician would be better served by cactin. Balance having been established through cactin in "dose enough," other indicated remedies should be added, sufficient of the cactin being continued to maintain the effect desired. That the appreciating clinician is well served by this remedy is evidenced by the fact that many, many millions of these granules have been consumed at the hands of the profession and nothing but satisfaction expressed—an experience which has covered a full decade.



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APOMORPHINE IN ACUTE ALCOHOLISM.

Several years ago Dr. Charles J. Douglas called the attention of the profession to the fact that apomorphine in very small doses was an excellent hypnotic and very valuable in acute alcoholism. Dr. Charles A. Rosenwasser now renews the plea (*Med. Record*, July 27, '97) for the more extensive use of apomorphine in this condition. He used it in acute alcoholism very largely and with such invariably good results that he heartily endorses the statements of Douglas, Coleman and Polk. He says that it has proven in his hands a prompt, powerful and safe hypnotic second to none in securing quiet and sleep in acute alcoholism.

In treating periodical dipsomaniacs in all stages of the attack he has found apomorphine in full dose of inestimable value, and is convinced that it has been the means of ending the attack in many instances. During the attack this class of patients, as is well known, have but one thought, one aim, one desire—liquor. The demand for the so-called stimulant is a veritable imperative conception. Apomor-

phine compels sleep, and when the patient awakens his chain of thought has been broken and the attack is over in many cases.

In all acute cases he has found the action of an emetic of some value in sobering the patient and diminishing or abolishing the desire for more drink, and therefore the dose of apomorphine he usually gives is 1-10 grain by hypodermic injection, adding 1-30 grain strychnine if the heart is acting poorly. Whenever possible, when giving the injection, the patient is made to lie down in bed and have basins in readiness, as the action of the drug is so rapid.

The author has never failed to secure the hypnotic effect in alcoholics, and only once failed to secure the emetic effect from 1-10 grain administered hypodermically. This occurred in a young man who had studied medicine, and in whom apomorphine was used with the desired result in a previous attack. From the action of the drug he knew that apomorphine had been given, and when the drug was injected in a subsequent attack he insisted that he would not vomit, and was successful in fighting off the desire to do so. He was unable to remain awake, however.

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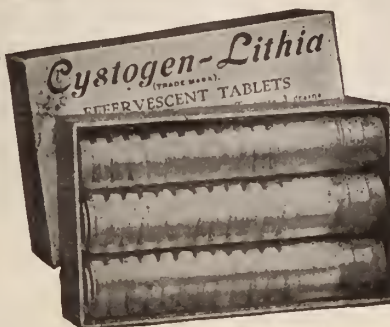
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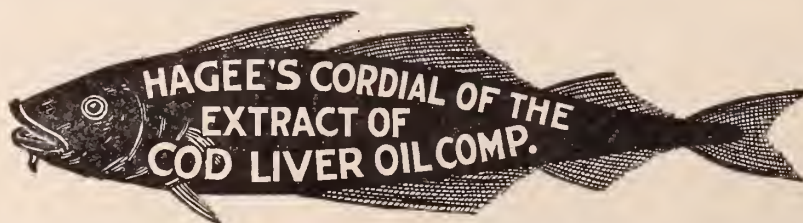
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Vermont Medical Monthly.

VOL. XIII.

NOVEMBER 15, 1907.

NUMBER 11.

ORIGINAL ARTICLES.

UTERINE CANCER IN VERMONT.*

An investigation into the prevalency of uterine cancer, in the State of Vermont, together with some observation on the paramount and radical extirpation.

importance of its earliest possible diagnosis,

By Carl W. Strobell, M. D., Attending Surgeon Rutland City Hospital, Rutland, Vt.

In the presentation of this paper, I wish to request that the discussion following, be kept strictly within the scope of its topic; that the thought actuating its production, shall maintain predominance. In other words,—I would have the twin ideas,—early diagnosis, and early eradication, blazed and cicatrized into every mind.

The scope of this paper will not permit us to go deeply into the question of etiology, heredity, prophylaxis, or, the disposal of inoperable cases, however interesting these phases. We would lose the practical result aimed at.—A step at a time, and that to be the most important one. Early diagnosis is that step; and the next follows it so closely as to seem part and parcel of it—early total eradication,—no compromise, no quarter. The enemy must be slain. Cancer kills.

Quoting Deaver: "Cancer of the uterus is the most insidious and deadly malady of the genital tract that the surgeon is called upon to treat."

Kelley, also, well says: "Who that never has been affected by the disease, can even begin to estimate the awful sum total of misery, suffered by one patient, as the disease progresses to its dreadful end."

Of 639 inquiry blanks sent out, 441 replies were received, of which 283 reported "no cases."

Four hundred and forty-one replies signify quite a general interest; and it may fairly be

assumed, that the non-reporting doctors, either had had no cases, or neglected, for allied reasons, to at least return the blank. Many among this number, had, undoubtedly, kept no records, and because of the uncertainty, would not report.

Three hundred and fifty follow-up postals were sent out in July, bringing 140 additional responses. This leaves a balance of 198 doctors, in the state, who have not reported.

At this point, I would suggest, and do most earnestly request, that from henceforth, all Vermont practitioners do keep an accurate record of their uterine cancer cases, so that in the future, a more valuable, because more complete, canvass may be made; the present, and primary one, serving as a basis of comparison.

If we are ever to conquer this disease, we must present a united front, and battle together. It will be a simple and easy matter to file these reports, as the cases are comparatively rare in each individual practice; the average, in the present canvass, being but three cases in ten years, to each of the doctors reporting cases at all. So that probably such a record would not need to be made more often than once a year on an average.

The gross results of the canvass are as follows:—

Six hundred and thirty-nine inquiry blanks, which included every physician in the state, were sent out.

441 men replied.

198 men did not reply.

Total, 639

Of the 441 replies,

154 men reported 438 cases of uterine cancer.

287 men reported "no cases."

Total, 441

Analysis of the 438 cases of uterine cancer, that have occurred in the State of Vermont, during the past ten years, shows, of these women, as regards state or condition, that,

21 were single.

334 were married.

83 were widowed.

Total, 438

*Vice-president's address delivered before the Vermont State Medical Society at St. Johnsbury, October 10, 1907.

Of the 21 single cases, 5 were reported as occurring in virgins.

Of the 21 cases occurring in single women, 5 occurred in the vaginal portion of the cervix, (portio vaginalis).

8 occurred in the cervix proper, (portio uteri).

7 occurred in the corpus, or fundus uteri.

1 case involvement of cervix uteri and corpus.

—

21

Of the 334 cases occurring in married women,

57 occurred in the portio vaginalis.

98 occurred in the portio uteri.

81 occurred in the fundus uteri.

8 cases involved both cervix and corpus uteri.

25 cases part affected not reported.

37 cases reported, in a general way, as involving the cervix.

17 cases reported as involving the portio vaginalis, and portio uteri.

11 cases reported as involving the "entire cervix."

—

334

Of the 83 cases occurring in widowed women,

5 cases involved the entire organ.

10 cases involved the portio vaginalis.

29 cases involved the portio uteri.

33 cases involved the fundus uteri.

2 cases involved the portio and corpus uteri.

2 cases part affected not reported.

2 cases reported as "affecting the cervix."

—

83

Of these 438 cases,

17½% were attributed to plainly traceable infection.

23½% were attributed to hereditary predisposition.

137 had undergone some palliative operation.

76 recurrences followed palliative operations.

37 total hysterectomies followed recurrences.

33% refused all operative measures.

1 instance of metastasis (to breast).

83% were parous.

34% of parous cases had aborted.

22% of parous cases had miscarried.

4 were reported as virginal.

43% as occurring during the menopause.

48½% as occurring after the close of the menopause.

24 cases presented a history of uterine neoplasms.

130 total hysterectomies were done.

46 recurrences followed these hysterectomies.

42 undoubted cases of uterine cancer in Vermont, at the present time.

46 suspected cases of uterine cancer in Vermont, at the present time.

Corroborative evidence is adduced, by this canvass, that trauma bears a distinctly causative relation to uterine cancer. Uterine cancer is practically a disease of the conjugal state, due, primarily, to its traumatisms; and, secondarily, to infection. In support of this position, we point to the fact, that 83% had borne children. It is safe to assume, that the remaining 17% had at some time aborted, or had undergone dilatation and curettage, for sterility or chronic endometritis, etc., which would land them safely enough in the traumatic class, with their parous sisters.

In 375 of these cases, the disease was wholly confined to the cervix, while 91 cases were reported as affecting the fundus alone. Thus, practically 80% of the cases of this series started in the cervix.

On this point, I wish to quote an eminent authority, who says,—“Cancer of the uterus occurs more frequently than in any other portion of the body. It occurs in the cervix in about 90% of all cases; and, in the body of the uterus, in about 10%.

HEREDITY AND INFECTION.

It is a fact of much significance, that 17½% of these cases were reported as “due to plainly traceable infection,” and 35% to “hereditary predisposition.” There should be no distinction. They should be classed together. It could not be infection in one and heredity in the other, any more than is pulmonary tuberculosis due to infection in one case and heredity in another; both carry the bacillus of Koch. We have then, 53% of this series of cases, admittedly attributable to infection by some parasite, as yet, possibly unknown.

Laphorn Smith, in an able article entitled, “Is Cancer Contagious,” which appeared in the December, 1906, number of the *International*

Journal of Surgery, presents a very strong plea for the infectiousness of cancer; making also the assertion that "the germ, *cancrimœba macroglossa*, an amœba sometimes called the *proteus animalcule*, etc., is known, etc." It is a most interesting presentation of the subject, by a well known observer.

In connection with the foregoing should be read Gaylord & Clowes convincing contribution to the subject, in an article appearing in the January 5th, 1907, issue of the *Journal of the American Medical Association*, entitled, "Evidences of infected cages as the source of spontaneous cancer developing among small caged animals." These authors give the results of a series of most interesting observations, tending to prove that cancer, as found in white rats and mice, is, beyond controversy, infectious.

At this point, I desire to quote Pryor, who says,—“Whether the disease is inherited, or because it is contagious, certain it is that in 20% of uterine cancer, other members of the family have had some form of cancer.” Further on, he says,—“Uterine Cancer is undoubtedly increasing, and so rapidly in certain localities, as to furnish to these the designation of ‘Cancer Zones.’”

In my investigation, two instances, similar to the conditions referred to above, have apparently occurred. From one small town of approximately 1,000 inhabitants, a physician reports 70 cases; while from another town of approximately 1,500 inhabitants, a physician reports 50 cases; these might be designated “Cancer Zones.” The nearest approach to these figures is that of a prominent Burlington surgeon, who is able to report 44 cases. Following the above, in point of number of cases, none exceeds 12 for any one man; the great majority reporting from one to three cases. These two especial reports are not included in the general statistics. They are appended below, for individual study, and may be added.

Palliative measures, having for their object radical cure, have, in the vast majority of recorded cases, proved dismal failures. It is a suicidal course to pursue, if the parametrial tissues, and pelvic lymphatics still show no involvement. In other words, if the disease is still localized in any part of the cervix or fundus, THEN is the golden opportunity for efficient radical work.

In this series, we find 140 palliative operations, with observed and recorded recurrences in 83, as follows,—

31	recurred in	3	months.
20	“	6	“
10	“	9	“
10	“	1	year.
6	“	2	years.
2	“	3	“
1	“	4	“
2	“	5	“
1	“	6	“
—			

Total, 83

Allowing for a certain element of doubt as to scientifically correct diagnoses, the results are a corroboration of the above statement, concerning the inefficacy of palliative operations, as a rule.

The remaining 60 cases were not followed up, as no reports were given. It seems fair to assume a proportionate number of recurrences.

Thirty-seven total hysterectomies followed recurrences in the 76 cases, although 130 total hysterectomies were reported,—

41	by the supra-pubic route.
75	by the infra-pubic route.
14	by the combined routes.
—	

Total, 130

Of this number, only 46 had been followed up, as regards recurrences, as follows:—

2	recurred in	3	months.
20	“	6	“
14	“	12	“
4	“	2	years.
2	“	3	“
4	“	6	“
—			

Total, 46

Forty-five cases that have undergone total hysterectomy are still alive, with, as yet, no recurrences. They are as follows:—

After	3	months,	2
“	6	“	1
“	9	“	1
“	1	year,	1
“	1½	years,	2
“	2	“	6
“	2½	“	2
“	3	“	5
“	3½	“	1

After 4 months	5
" 5 "	4
" 6 "	5
" 7 "	2
" 8 "	1
" 9 "	2
" 10 "	3
" 12 "	1
" 13 "	1

—
Total, 45

There was but one case of metastasis reported, following the radical operation, and this was to the breast.

The reports received do not make clear the superiority of any particular route over another, but simply that, in the composite, the predisposition is to favor the supra-pubic route. And the best thing that may be said of this is that the supra-pubic or abdominal route is applicable to all cases alike; while the infra-pubic, or vaginal route, is limited to those cases wherein the disease is still wholly localized in the organ, free from complications, and limiting adhesions. In other words, the very cases in which there is the possibility of a radical cure by early diagnosis and early total, or pan-hysterectomy, are the very ones in which the vaginal route should be selected. When, however, there is any appreciable degree of parametrial involvement, the WERTHEIM operation presents the nearest approximation, technically, and as regards practical results, to the ideal surgical procedure.

One hundred and forty-five cases, or 33%, refused all operative measures, either palliative or radical. In this connection, we are forcibly reminded of the fact, that where an early diagnosis is made, it is frequently very difficult to obtain the consent of the patient to submit to a radical operation, *except in those cases where a pathologist's report can be shown*. I desire to call particular attention to this highly important psychic phenomenon, in its bearing on the practical leadings of my paper. There is nothing better than this to convince, and to bring about, a rapid and favorable decision. I consider a pathologist's report of uterine scrapings, or wedge of affected tissue, absolutely essential, in the plan of campaign against this disease. Such specimen can always be obtained upon one pretext or another, without needlessly alarming the patient as to one's suspicions, except in cases where it becomes

necessary to secure the patient's co-operation. If the fundus is suspected, there is usually good excuse for the use of the curette. Where the disease is confined to the cervix, a small wedge of affected tissue, can, under cocaine, be easily and safely removed, with or without, the cognizance of the patient.

So much of doubt, on the part of the patient, is liable to enter into the question, touching the correctness of the diagnosis and prognosis of the doctor, in these early cases where subjective symptoms are few, that the patient requires something more tangible to absolutely convince, and to make her realize the dangers and folly of delay. In this relation, a fact of great importance is brought out, in the replies to question 4 (earliest symptoms, etc.) i. e., only four doctors, out of the reporting 155, rely upon microscopic findings: ALL SHOULD DO SO.

With regard to age limit, in uterine cancer, Findley says,—“The earliest recorded case appeared at eight years of age, while at the other extreme was a case which came under my observation in a woman whose age was 93.”

Of course these are the extremes. However, it is not the rule; and I believe that where a case occurs in a virgin, at any age, some occult traumatism has preceded the infection.

I might generalize, stating the comparative frequency of uterine cancer at the different periods of life, as regards these 438 cases, but think best to present the age details for your scrutiny.

Single women, 21.

Ages—24, 32, 38, 40 (3), 45 (3), 46, 48, 50, 51, 52, 56, 58, 60, 62, 68, 2 ages not reported.

Married women, 334.

Ages—22 (2), 25 (2), 29 (3), 30 (3), 31 (3), 32, 33, 34 (4), 35 (14), 36 (5), 37 (4), 38 ((11), 39 (2), 40 (15), 41, 42 (8), 43 (7), 44 (5), 45 (15), 46 (11), 47 (8), 48 (14), 49 (4), 50 (31), 51 (2), 52 (6), 53 (6), 54 (8), 55 (12), 56 (8), 57 (2), 58 (9), 59 (3), 60 (19), 61 (2), 62 (3), 63 (2), 64 (3), 65 (5), 66 (2), 68 (4), 70 (2), 72, 74 (3), 75, 76, 79.

5 cases reported as ages past 40.

5 cases reported as ages between 34 and 56.

3 cases reported as ages between 40 and 50.

4 cases reported as ages between 40 and 52.

5 cases reported as ages between 40 and 54.

2 cases reported as ages between 45 and 50.

6 cases reported as ages between 50 and 60.

4 cases reported as ages past menopause.

22 cases ages not reported.

Widowed women, 83.

Ages—35 (2), 40 (2), 42 (3), 45 (3), 46, 48 (2), 49, 50, 51 (2), 52 (2), 53, 55, 56, 57 (3), 58 (3), 59, 60 (6), 62, 63 (3), 65 (9), 66, 67, 68 (4), 70 (8), 71, 72 (2), 74, 75 (4), 76 (3), 80 (4), 83, 5 cases ages not reported.

83% had given birth to at least one child.

40% of all cases had either aborted or miscarried.

1% was reported as occurring in virgins.

43% occurred during the menopause.

48% occurred after the menopause.

This corroborates the findings of all investigators, namely, that the menopause is the most dangerous period. 91% clustered about this 4th great epoch of a woman's existence. It is a terrible menace to motherhood; the most important factor of our social life, and the most to be guarded, when, as in Germany, for example, 25,000 mothers annually die of cancer of the uterus; and these figures are duplicated in the United States, as well as in other civilized countries.

Welch's statistics, showing the comparative frequency of uterine cancer, may well be quoted in this connection:—

<i>Primary Cancers.</i>	<i>Stomach.</i>	<i>Uterus</i>
	%	%
11,132 in Vienna,	10	31
7,151 in New York,	25.7	24.2
9,118 in Paris (Tanchour),	25.2	32.8
1,378 in Paris (Salle),	31.9	32
587 in Berlin,	35.8	25
183 in Wurzburg,	34.9	19
1,046 in Prague,	37.6	33.3
889 in Geneva,	45	15.6

It is a sad reflection, that so much of this mortality could have been prevented, if that most prominent, and almost invariable accompaniment of the disease, bleeding, did not lull so many of the laity into suicidal procrastination.

Dr. J. B. Wheeler, in a timely article on "Cancer of the Uterus," read before this society

in 1897, drew particular attention to the misleading and dangerous error under which the laity labors, i. e., "that irregular bleedings, between the 40th and 50th years are to be expected as natural to the change of life;"—also the fact that "many physicians, who ought to know better, indulge these women in this belief instead of looking to see what the matter was."

Twenty-four of the cases reported gave a history of uterine neoplasms, that had undergone malignant degeneration; further facts regarding these were not elicited. It is safe to classify these, as fibro-sarcomata of the body of the uterus, since cervical sarcomata are rare.

There are at the present time, in Vermont, according to this canvass, 48 undoubted cases of uterine cancer; and there are 46 cases in which the disease is suspected. It is not the former list of these cases that is of the most vital interest to us, since it is only in the latter list, in which there is as yet nothing more than suspicion, that life-saving work can be done. And to the utmost of his abilities should the attending physician lay this upon his conscience, never resting until he has secured proof, pathological proof, that the condition is, or is not, carcinoma.

Think of the loss of the mother in the home. The anguish of maternities past, she is the joy, comfort, solace, and keystone of the family, around whom cluster the sweetest things of life; the shrine of every human heart; to be slain, in the crowning years of her service to the race, by this vampire of merciless maw!

Two physicians, one in the northern, and one in the southern part of the State, report a remarkably large list of cases, with such unusual results that I have not included them in the totals, but present them in a separate list, appended below, to be disposed of by the student.

Dr. ——— reports 50 cases.

Traceable to infection, none.

Traceable to heredity, 25.

10 were single, (between 35 and 50 years).

40 were married, (between 40 and 60 years).

Earliest symptom, hemorrhage.

6 submitted to palliative operations.

5 of these recurred in three months.

1 of these recurred in one year.

6 total hysterectomies after recurrence.

37 parous cases.

"Most all" parous cases had miscarried.

10 cases had occurred in virgins.
 45 cases occurred during the menopause.
 5 cases occurred after the menopause.
 1 gave a history of uterine tumor.
 1 recurrence after total hysterectomy in one year.

1 recurrence after total hysterectomy in four years.

42 total hysterectomies, "all alive at the end of two years."

7 operations by the vaginal route.

35 operations by the abdominal route.

3 undoubted cases of uterine cancer under treatment at the present time.

1 suspicious case of uterine cancer under treatment at the present time.

Dr. ——— reports 70 cases.

Gives "general condition" as the earliest symptom to be relied on.

Has had 70 cases in the last ten years.

2 submitted to palliative operations.

Of these, 1 recurred in 3 months.

Of these, 1 recurred in 2 years.

Nothing further was done in these cases.

68 submitted to total hysterectomy.

54 of the 68 hysterectomy cases are alive and well after 3 years.

In none of the cases was operation refused.

Can not say as to "heredity or infection," in any of his cases.

All of the 70 cases occurred in married or widowed women.

60% of these women had given birth to at least one child.

10% of these women had at some time aborted.

5% of these women had at some time miscarried.

70% occurred during the menopause.

3% occurred after the close of the menopause.

Operations were by vaginal route, 1

Operations were by abdominal route, 67

Operations were by combined routes, 2

Total, 70

8% gave history of uterine tumors.

Has now 4 undoubted cases of uterine cancer under his care.

Has now 5 cases of suspected uterine cancer under his care.

The foregoing two reports are those referred to, in my remarks, upon "infection and heredity," as furnishing instances of Pryor's "cancer zones."

Answering question No. 4,—“Upon what earliest clinical signs or symptom do you rely, as a result of your observation and experience, in making a diagnosis of cancer of the womb?”
 —Of the 154 doctors reporting cases:—

75 rely upon the varying degrees of uterine hemorrhage.

36 “ “ discharges.

37 “ “ pain.

17 “ “ odor.

14 “ “ induration.

6 “ “ cachexia.

5 “ “ microscope.

5 “ “ enlargement.

9 “ “ ulceration, i. e. erosions.

5 “ “ emaciation.

2 “ “ derangement of the catamenia.

2 “ “ tumor.

1 “ “ rigidity.

1 “ “ deformity.

1 “ “ tenderness.

1 “ “ anæmia.

1 “ “ palpable mass.

1 “ “ general looks.

1 “ “ return of menstruation, after the menopause.

In the main, these observations agree, quite closely, with the general averages obtained in similar investigations.

Truly, as a noted Leipsic authority says:—
 “The diagnosis of carcinoma of the uterus, is the most responsible the physician is called upon to make. The price of every failure of diagnosis, or for a diagnosis made so late that the cancer has already become unsuited for operation, is a human life.”

It would be tiresome and confusing, to give a resume of all the symptoms of cancer of the womb. We are all more or less familiar with them; and so many articles are appearing, at the present time, upon this subject, that I will content myself with stating just what symptoms should arouse our suspicions of the presence of this condition, and lead to early diagnoses. Advanced cases we all are able to, and do, recognize. Such are ante-mortem diagnoses.

What is sorely needed, is a crystallized, concise, diagnostic formula, embodying only those symptoms that arouse suspicions of the presence of the early stage of cancer. After much deliberation, I have condensed the prime diagnostic symptoms of early cancer of the womb, into a working formula. This formula I have designated “Cancer Quartette,” the better to

fix these cardinal signs in mind, for practical use, in early diagnosis.

Symptoms:—

- Hemorrhage.
- Induration.
- Discoloration.
- Ulceration.

The presence of any one of this cancer quartette, either alone or in combination, is the signal of distress, for an immediate pathological investigation. The physician who, unhindered, neglects to do this, or to have it done, without unnecessary delay, fails in his duty as a man.

If the report is confirmatory, no time is to be lost. There is nothing in this report to encourage palliative operations. Immediate total- or pan-hysterectomy should be done, by whatever route seems advisable. My own preference is for the vaginal route, and by the "Clamp Method," if the disease has not extended beyond the uterus. The surgical rule that, "all operations for cancer should proceed through normal tissues, and no radical operation should be attempted, unless the section of the tissues can pass outside the cancerous field," makes necessary the removal of as much parametrial and adnexial tissue as possible. The method that secures this result, with the minimum of danger, is the "Clamp Method"; which, with suitable precautions, can be made to reach far out, laterally, and grasp and cause to slough, tissues that could not be reached by the ligature. The "Ligature Method" leaves vitalized stumps; the "Clamp" destroys the stumps. Clamps are afterwards removed in a period of time varying from 48 to 72 hours. In my experience, hemorrhage has never followed their removal. The best description of the technique of this operation is given by Pryor, whose method the writer follows, and whose special instruments for the proper performance of this work are well-nigh indispensable. With the operation completed, a snug Mikulicz pelvic dressing retains the stumps firmly in the vaginal vault, and is left in situ seven days. I would again advise following Pryor closely, in this procedure, as much depends upon his technique for success. The advantages of the vaginal, over the abdominal, route in suitable cases are manifold, and deserve the close study of all operators.

If the operation is properly conducted, with reference to the safety of the ureters, by the use of Pryor's trowel, and strong counter-

extension upon the cervix, these important structures need not be feared. However, ureteral catheterization may always precede, and will make safer, the main procedure. Sufficient space for the performance of the vaginal operation may be obtained by preliminary divulsive procedures upon the perineal structures.

If the case proves to be unsuited for this particular operation, (i. e. if tumors, adhesions, inflammatory infiltrates, metastatic involvement, or malignant encroachments, contra-indicate), then my preference is for the "Wertheim" operation, which not only removes the uterus and adnexæ, but the upper third of the vagina as well. This method seeks also the thorough removal of all affected para-vaginal and para-metric tissues, lymphatic glands and fat, the ureters being fully exposed to view, by means of a previous free incision, of the pelvic peritoneum, along the course of these tubes in their passage across the pelvis to the bladder. If operative measures are to be relied upon to effect a radical cure of cancer of the uterus, in the more advanced cases, the work must proceed upon lines similar to those followed in the radical breast operation.

Perhaps, as time goes on, further experience with the "Wertheim Method" may prove it to be the operation of choice in all cases. Doderlein, of Tübingen, says: "The operability of cancer of the uterus, from 1897 to 1901, was 45% by the vaginal method; and in the last two years, by the "Wertheim Method," it has reached 60%; while the immediate mortality (of the Wertheim operation) has been reduced from 16%, to less than that of the vaginal operation." This operation is on trial, and should receive the attention it deserves. It is by no means a simple operation, and, consistent with thoroughness and safety, should not be undertaken without the requisite skill to bring it to a rapid conclusion.

DISCUSSION.

Dr. J. B. Wheeler, Burlington, Vt.—I am very glad to have the opportunity of taking part in this discussion in order to express my admiration for the care and pains Dr. Strobell has taken in getting up this interesting paper. It shows an amount of original work and a greater amount of care in collecting, sorting and arranging of material, than we usually see in papers presented before this society and it seems to me it is a very valuable contribution to the subject of uterine cancer. I am not expecting to discuss the paper for I supposed the gentlemen who were appointed to discuss it would be here so I am not prepared to say very much, certainly not what the paper merits.

The main point is the importance that attaches to the earliest possible diagnosis of uterine cancer. Some one has said that the life of a woman with uterine cancer is not in the hands of the surgeon but in the hands of the family physician. That is certainly the fact. If a woman's family physician is able to recognize a condition of uterine cancer in an early enough stage for a successful hysterectomy, of course her life is saved, and if he is not able to recognize it as early as that, any operation which is done is merely palliative, and her life is lost although it is made a little more comfortable while she lasts.

As regards the conclusions, there is very little more for me to say. In my own experience, I find the most important symptom is that of irregular hemorrhage. A woman who is forty years of age or more, who, if she is still menstruating does not menstruate as regularly as she did, but has a slight show of blood through a part of the month or from time to time an occasional show of blood or who perhaps has a leucorrhoea which is more or less bloody, is in a suspicious condition. At that age, the probability is that it is cancer and it calls for a thorough investigation and the physician should not rest satisfied until he has proved that it can not be cancer. So large a proportion that have come under my observation have shown this symptom that in a woman of that age, I should be very strongly inclined to think she had a beginning cancer of the uterus even if a microscopical examination of the scrapings from the cervix or interior of the uterus showed nothing. The specimens taken may not happen to contain cancerous tissue or the pathologist may happen to get a hold of a part which is not typical. If a pathologist tells me that the tissues submitted are characteristic of cancer, I should accept that as thoroughly satisfactory evidence and I should remove the uterus. If he should say that he can not find any evidence of cancer, I should still feel so suspicious of the existence of cancer that I should advise the patient to have the uterus removed. When induration, ulceration and discoloration are present, the diagnosis of uterine cancer would be much more positive.

Dr. L. M. Bingham, Burlington.—I have as a rule depended upon the pathological conditions as they have been determined by the microscope, but they have not always proved to be satisfactory. These operations have not been performed as often as the symptoms or the conditions of the patient demand. This paper which we have just listened to is one of great interest to our Society. The urgency and intensity which the doctor has put into this paper is well worth your consideration. I appreciate it very highly. The author wishes us to confine our remarks to the subject proper, hence, we are rather excluded from differential diagnosis. As Dr. Wheeler has said there is a suspicion when certain symptoms occur. Make your diagnosis satisfactory to yourself. It is a little difficult, at least I have found it so, because a great many cases which had the hemorrhage, and even the pain and the purulent discharge, who have reached the age of forty or even over forty, have been cured by the operation to relieve the uterus of other conditions. I would not have the physicians feel that the conditions which give rise to the symptoms of uterine cancer are to decide the matter unless you have the products under the microscope and are satisfied with the result. There are many instances where curetting and proper treatment of uterine hemorrhage, supposed to be cancerous, has been curative. The whole fact rests with you—you must be satisfied in your own

minds and you are negligent if you do not take the means to such end.

Dr. B. H. Stone, Burlington.—Any pathologist knows that uterine scrapings are the most difficult kind of tissue to pass a safe judgment upon from the fact that the pathologist very rarely knows the relations of the tissues which he has submitted to him for diagnosis. The normal relations are more or less destroyed in removing the tissue. Any honest pathologist must very often refuse to pass judgment on tissue of this kind when the clinical symptoms justify the surgeon in going ahead. That may be said of any laboratory diagnosis, however. The clinician or surgeon should not be too strongly influenced by a negative result. On the other hand a positive result should be given great weight. The pathologist should be given the benefit of the history of the case. This fact is particularly true as regards the age of the patient. He should be given the benefit of the attending physician's or surgeon's knowledge. Very frequently the surgeons seem to think that if they give the pathologist any history of the case, they are giving the whole thing away to him. They seem to think the tissue should be given to the pathologist in a sort of a puzzle which he is to solve. When specimens are submitted to the pathologist, all possible data should accompany them. Age of patient, duration of symptoms, family history, and location from which the tissue was removed.

Dr. C. W. Strobell.—I would like to ask Dr. Stone whether or not it is difficult to differentiate between normal cervical tissue and carcinomatous tissue.

Dr. B. H. Stone.—It is not very difficult. It is often difficult however, to differentiate between an adenomatous condition, the result of a chronic endometritis and malignancy. If you know in what direction you are cutting the specimen which you have submitted to you, you can be much more certain in your interpretation. A wedged shape piece from the cervix can be examined much more satisfactorily than scraping from the uterus for that reason.

Dr. W. S. Nay, Underhill.—Is one justified if there is a cervical laceration in anticipating a cancerous condition? During the menopause, a cancerous condition may occur. If there is a laceration of any kind, in order to avoid a cancer an operation is needed. Is that a justifiable operation?

Dr. J. B. Wheeler, Burlington.—With regard to the matter of hemorrhage, I did not mean to say that every kind of a hemorrhage is necessarily the beginning of a cancer. The hemorrhage which shows most indications of cancer is a slight irregular discharge which comes between the normal periods of menstruation. A severe flowing is more indicative of endometritis. The small drizzling or bloody leucorrhoea is more indicative of cancer.

Closed by Dr. Strobell.—Replying to the question, "Is immediate repair of the lacerated cervix, following labor, justifiable?" Yes, by all means, provided the operation is done under complete asepsis, which is to say, under exactly the same conditions as should surround the later and usual trachelorrhaphy; and by a competent surgeon. Directly after labor the walls of the cervix are very thin, succulent and flabby, which condition renders difficult exact co-

aptation which is essential. It is, therefore by no means a simple operation. Some degree of subinvolution almost invariably follows unrepaired cervical lacerations. Defective drainage due to subinvolution invites infection; this in turn causes endometritis; chronic endometritis is accompanied by various form of leucorrhoea, which is apt to be acrid, excoriating and irritating to the traumatized cervical structures. This irritation predisposes to malignant degenerations of cicatricial tissues.

Not all lacerated cervixes undergo malignant degeneration, however; it is a matter of escaping infection, merely. I have personally noted several instances, of badly lacerated cervixes, of several years' standing, in which, while there was present, subinvolution, still there had never been infection, hence no leucorrhoea, nor any pelvic symptoms. The danger of streptococci, staphylococci, or sapraemic infection, is the real danger, and few escape contamination.

As a precaution against infection, provided it can be done under strict surgical conditions, immediate repair of the cervix is the best procedure, if the woman is perfectly healthy. Under any other condition, i. e., where previous pelvic disease exists, the operation should be deferred three months, at which time a thorough curettage should precede the trachelorrhaphy.

AUTO-INTOXICATION.*

By H. C. Jackson, M. D., Woodstock, Vt.

The latter part of the nineteenth century saw a complete revolution in our conception of the etiology of contagious and infectious diseases. The idea of a living agent which multiplied in the body and caused the symptoms of disease had long been entertained. The analogies between the fermentation of fluids and disease had frequently been suggested.

The brilliant researches of Pasteur in the bacterial origin of disease, and those of Lister in the suppurative processes in wounds, which have revolutionized surgery, and more recently the work of Robert Koch, discovering in rapid succession the causes of several of the most destructive of epidemic diseases; all this I say has modified clinical medicine in several important directions.

I make no apology for presenting this subject at this time and my intention is not to attempt any learned discussion, nor to project any high flown theories which are mainly without foundation of fact, but to present some points which I trust may be of interest to the general practitioner. While much remains to be done we have enough positive knowledge to enable us to approach the clinical side of this question in an intelligent manner un-

burdened by much of the nonsense which has been written about it during the last twenty years.

Bacteriology as an explanation of the cause of disease, is in these days supplemented by the doctrine of poisons. Nearly all writers on the subject admit that Bouchard gave the theory of auto-intoxication its proper position in medical literature. He gathered together the data from which he wove his theory of auto-intoxication, and by it he seeks to explain the self poisoning of man by metabolic products formed by the organism itself, or by toxins produced within the gastro-intestinal canal.

In pathological conditions the question invariably arises whether the symptoms are due to the mechanical disturbance caused by the presence of the germs, or by the circulation of poisonous products—*toxins*—formed by these minute organisms.

The best authority in medicine leans toward the latter view, for example: in diphtheria the microbes are only on the surface of the mucous membrane, and even then there are very marked constitutional symptoms. Disease may even be caused by fluid cultures from which the bacteria have been removed by filtration.

Man is born free of microbes but the first implantation occurs almost in the act of parturition for soon after birth the skin and mucous membrane become infected either from the air or from the water with which the infant is washed. Bacteria are however found in the intestinal contents a few hours after birth.

Bouchard in his little book published last year clearly indicates that man is as it were standing on the brink of a precipice; he is continually on the threshold of disease; every moment of his life he runs the risk of being overpowered by poisons generated within his system. Self-poisoning is only prevented by the activity of such excretory organs as the kidneys and by the watchfulness of the liver, which acts the part of a sentinel to the materials brought to it by the portal vein from the alimentary canal.

Disease is not something altogether apart from the individual; the patient and his disease are too often found living under identical conditions. Perverted nutrition often leads up to the development of new substances which may become toxic.

*Read at the Annual Meeting of the Vermont State Medical Society at St. Johnsbury, Oct. 10, 1907.

During pregnancy poisons are formed in the mother and foetus which circulate in the maternal and foetal blood. The developing foetus contributes its part of the waste products to the maternal blood, but there is conclusive evidence that these waste products are not the cause of the auto-intoxication. Upon the mother is thrown the burden of eliminating by the kidneys, liver, intestines, skin and lungs the bulk of the poison formed within the two organisms. When these poisons are retained auto-intoxication is produced which varies in degree from the heightening of the arterial tension, headache, and gastric disturbance, to convulsive seizures as in puerperal eclampsia. "The urine of eclamptic patients has been found to be much less toxic than that of other pregnant women, while the blood serum, on the other hand, is distinctly more poisonous than that in normal pregnancy. There can be no doubt, therefore, that in the blood of eclamptic patients there is an accumulation of poisonous substances. These in all probability are not the end products of destructive metabolism, but rather the intermediate products which have gained the circulation because of failure on the part of some organ, to convert them into useful, or at least harmless bodies. In other words, eclampsia presents every evidence of being a severe auto-intoxication." (Lewis A. Conner).

There is however a marked decrease in the toxicity of the urine beginning with the second month of pregnancy, and this is believed to be due to the hyperactivity of the liver, for it is found where this activity ceases the toxicity of the urine invariably increases.

Women who are pregnant are often the subjects of digestive derangements of which distressing and uncontrollable vomiting is the most exhausting accompaniment. Morning sickness may occur at any stage but this particularly severe form to which I refer is that type usually met with in the later months of utero-gestation, which may come on at any hour of the day and which if not checked, may, by seriously interfering with alimentation, lead to serious consequences.

Many theories have been advocated to explain this sickness, from hysteria to organic disease of the adnexa; but the best authorities to-day claim it is the toxemia of pregnancy or auto-intoxication.

To prove that certain poisonous substances are eliminated by the intestines we have only to notice the fetid stools of persons who frequent the postmortem theatre. Their fetid character recalls the putrid odor of the emanations from the cadaver.

Occasionally we find a patient who has what we may term a salutary diarrhoea, and at the same time may have the appearance of perfect health.

The diarrhoea and the good health may disappear at the same time.

There is a mistaken notion in the treatment of some diseases that the intestine may act vicariously for the kidney by the discharge of serum.

Vicarious functions for the kidney have never been proven any more than for the intestine or the skin. In increasing the secretions of the skin and the intestine; much more water will be eliminated from the system but the poisonous substances normally eliminated by the kidney will not be in the water. There is a definite quantity of material associated with a determined quantity of water according to the enuncatory by which the water is thrown off, e. g. a certain quantity of urea should be eliminated in a definite quantity of urine, while the perspiration will carry away one one-hundredth as much urea for the same amount of liquid.

By these means we have eliminated quite a quantity of water from the system but it is the water laden with the poisons of perspiration and not such as would naturally pass through the kidney. The inevitable result is the diminution of the quantity of the urine in what may be assumed to be the uraemic patient whose urine is now already decreased in quantity and having a specific gravity lower than normal.

More rational treatment would seem to be: to stimulate the nervous system by irritating the cutaneous branches by friction in order to obtain in a reflex manner the quickening of the renal circulation and consequently an increased secretory activity of the kidney.

We demand the same result from the use of drugs; caffein and digitalis, means differing from the preceding since they are applied to the central nervous system. When the function of the kidney is impaired digitalis should be used with caution as failure on the

part of the kidney to eliminate the digitalis would be as serious as the retention of poisons generated in what was presupposed to be a uraemic patient.

It is a well known fact that the blood carries constantly a small amount of toxic material; this comes directly from the tissues and if retained would destroy life.

It is estimated that the quantity of toxic matter which passes from the blood into the kidney in twenty-four hours is half enough to kill the whole body, but the elimination is incessant and the blood at any time only contains a small amount of poison. If this supply from the blood is kept up and elimination stopped toxaemia is inevitable.

The prostration and collapse of a patient suffering from intestinal obstruction are generally more severe than either the vascular condition of the wall of the bowel or the blocking of the alimentary canal adequately explain. With a view of determining if possible what the substances are that produce these symptoms, Prof. Kukula undertook a series of experiments which I give only in brief.

Two classes of poisons are known to exist in the alimentary canal:

First:—Those in small quantities arising during normal digestion. These are the acids; lactic, butyric, acetic; due to carbonic acid fermentation. Besides these there are substances derived from putrefaction of albumins, such as carbon dioxide, ammonia, lucin, phenol and sulphuretted hydrogen.

Second:—Chemical substances formed in stagnant or fermenting faecal matter; these are toxalbumins or ptomaines. In health the peristaltic movements of the bowel are promoted by the products of the first group when they are present in small amount. These you will remember were the acids; acetic, lactic, butyric, carbon dioxide, ammonia, lucin, phenol and sulphuretted hydrogen. Should these be in excess they cause gastro-enteritis, whereas ammonia, phenol and sulphuretted hydrogen are really toxic.

The products of the second group viz.: toxalbumins or ptomaines are the ones that principally cause auto-intoxication.

This same Prof. Kukula by a series of experiments on dogs, found in cases of strangulated herniae and artificial intestinal obstruction the well marked symptoms which he had seen in man under similar conditions.

On careful investigation he found these symptoms due to sulphuretted hydrogen and two of the ptomaines whose names I am unable to pronounce.

These symptoms which in a general way recalled those that are observed in man with intestinal obstruction, are probably due to the absorption of toxic matter through the intestinal wall.

In some people there arises an intoxication from special foods without being either toxic or putrid, but which induce regularly indigestion and grave phenomena. In these cases the intoxication is the result not of the food but of the lack of digestion. The digestive juices cease to transform the food which the stomach does not care to retain.

The nervous system produces disorders of secretion—the gastric juice stops flowing into the stomach or else the hydrochloric acid is absent from it at the moment of the conflict of the food with the microbes. The hydrochloric acid ought to protect the alimentary mass against parasitic ferments.

These being no longer neutralized, abnormal fermentations are produced in the stomach and in the intestines.

Dilatation of the stomach following as it does from pathological conditions may be due to several different causes:

First:—From an antecedent dyspepsia with food too long retained in the stomach.

Second:—From a chronic catarrh of the mucous membrane preventing physiological secretion.

Third:—Cancerous or cicatricial constriction of the pylorus.

Fourth:—The puckered cicatrix of a cured ulcer may lead up to distention of the stomach mechanically.

Bouchard in his book from which I have quoted says very emphatically: "We should not introduce an additional meal into the stomach when the previous one has not been digested."

He adds further: "Five hours after ingestion the presence of food in the stomach is pathological; and from the sixth hour there will occur in this alimentary mass anomalous fermentation," and "the conditions are much worse after the seventh hour."

Auto-intoxication by bile deserves at least a passing notice. Bile is very abundant, al-

most equal in quantity to the excretion of normal urine.

It is diffusible—passing by means of osmosis into the blood. It is rich in solid substances but does not contain albumin. Of the various coloring substances contained in it bilirubin is the most important, the others being derivatives of it.

Of the other ingredients present only one other need be considered i. e. biliary acids. We may feel safe when we consider that these are the only poison ingredients and they, becoming insoluble in the intestines, will produce no poisoning regardless of the quantity poured out even when the kidney is only slightly permeable.

It is estimated that a man in health secretes enough bile in twenty-four hours to kill three men of his own weight.

The volume being equal bile is nine times as poisonous as urine and in an equal period of time the biliary secretion represents a degree of toxic power six times as great as the urinary secretion.

It will be remembered that in every thousand parts of bile eight hundred and fifty are water and of the remaining one hundred and fifty, ninety are bile salts and thirty are coloring matter.

As long as the individual is in a state of health very little is to be feared from the toxic effect of bile. Moreover he will become accustomed to a certain amount of jaundice which perhaps has lasted for years. Dr. Osler in his last edition mentions the cases of several individuals who lived to be thirty-five years old and were jaundiced from birth. But he adds, "The symptoms of toxic jaundice are not nearly as striking as in the obstructive variety. The bile is usually present in the stools, sometimes in excess, causing very dark movements.

The skin has in many cases only a slight demon tint. In severer forms as in acute yellow atrophy the color may be more intense. In many cases of the toxic variety the constitutional disturbance is very profound and there are high fever, delirium, convulsions, suppression of urine, black vomit and cutaneous hemorrhages."

Another cause of auto-intoxication is the over excitement, worry and high tension dependent upon the strenuous life we Americans are living. Prof. Vernon draws a distinction

between over excitement of nerves and nervous exhaustion; and arrives at the conclusion that in consequence of over exertion there is induced a toxemia caused by excess of carbon dioxide in the tissues. He explains the sense of exhaustion after laborious work on the theory that the available oxygen which is normally stored up in the tissues has been largely consumed.

The causes of auto-intoxication may be numerous but there is not the least doubt that the poisons are principally absorbed from the gastro-intestinal canal. If this is so then clearly this is the part of the body which calls for special attention and treatment.

A patient whose age is fifty, occupation dentist, history negative except in cold weather suffers from chronic bronchitis, appetite and digestion generally good, except some constipation at intervals.

Began early in the day with a feeling of malaise, appetite gone, tongue coated, bad taste in mouth and slight rise in temperature. I was called about 7 p. m., found patient in bed. Temperature 105 degrees, pulse 120, respiration 35. Physical examination negative, bowels had not moved since previous day; extreme prostration but no pain, diagnosis—auto-intoxication.

Tablets were ordered containing one grain each calomel and bicarbonate of soda—one every two hours until four doses were taken.

Saw patient again in eight hours, but no result from medicine. Ordered suds enema with good result, but temperature and pulse were still elevated.

Stimulants with some liquid nourishment taken and retained. Another enema four hours from first with good result but fecal matter hard. Two more doses of calomel and soda Bivarb. ordered and another enema in four hours with a good result of watery stools. Temperature and pulse now both below 100 and general appearance of patient much improved. Recovery was not rapid but uneventful. Treating the same patient now I should order the same medicine with strong saline enemata every four hours.

Another case similar to this one, which I saw several times, was of a man about seventy years old. I did not get the details of this one but they were very similar to the last, only much more severe.

The diagnosis was the same, auto-intoxica-

tion. The high temperature and pulse, severe prostration, restlessness, sleeplessness and failure to get any movement of the bowels, caused his life to be despaired of for several days. He however recovered after several weeks of very careful nursing.

Within a few years some very good authorities have come to believe that chlorosis and pernicious anemia are caused by a chronic intestinal auto-intoxication. Following out this line of investigation some of us are now ready to believe that these diseases are caused by a germ located in the large intestine. This theory was warmly supported in the annual address this year of the president of the Windsor County Society.

I find also this theory is warmly supported by such men as Sir Andrew Clark, Bouchard, Hullmann and more recently by Forchheimer.

I might add that the treatment of these cases is little or nothing by the mouth in the way of medicine, but strong saline enema.

For intestinal auto-intoxication four lines of treatment may be indicated.

1—*Prophylactic*. 2—*Dietetic*. 3—*Lavage*. 4—*Medicinal*.

In prophylaxis is included all foods that are capable of undergoing fermentation and putrefaction. Nitrogenous food is much more liable to induce auto-intoxication than will carbohydrates. A freer use of milk and a return to a simple diet are called for. Lavage of the colon and anything that will promote normal peristalsis of the intestine are of use.

This is the method employed by the New York Floating hospital for children with wonderful results. Salt solution of a little more than normal strength and the colon washed as thoroughly as is possible in the case of small children. Two washings are usually sufficient for a reduction of temperature and a marked improvement in the condition of the patient. As for drugs, small and frequently repeated doses of calomel followed by a saline are all that is necessary.

Perhaps I could do no better than close this paper with a few words concerning auto-intoxication of thyroid origin. Although quite a good deal has been done along the line of internal secretion during the past few years, much more is necessary before the results reach a working basis.

Two Swiss surgeons first showed that not only the removal of the thyroid was followed

by myxoedema, but that in children where the gland was congenitally defective, a peculiar condition was observed known as cretinism. They also drew attention to the fact that when the gland is enlarged and too much thyroid juice enters the system, the process of metabolism is hastened and we get palpitation, muscular tremors, exophthalmos and a slight rise in temperature.

Hear this statement from Dr. Lewis Conner: "It can now scarcely be doubted that the thyroid exerts some form of controlling action upon the products of digestion, whereby complete assimilation is brought about. It completes the conversion of the absorbed foods and destroys certain unfinished toxic products of metabolism. The exact method of its action is not clear."

In 1901 Dr. F. Blum working along this line, arrived at practically the same conclusion: to the "effect that the function of the thyroid gland is not so much to form an internal secretion which passes into the blood as to seize upon and render harmless certain toxic substances that are formed in the intestine and find their way into the circulation."

Taking a certain number of dogs upon whom he had performed thyroidectomy he fed some of them on milk and others on meat. Among the animals fed upon meat, the mortality was as high as 96 per cent. while those fed upon bread and milk the mortality was 40 percent. and they survived the twentieth day. Eighty per cent. remained well as long as the milk diet was continued but many of them died very quickly when meat was substituted for milk.

It is not supposed that meat is in itself toxic and is rendered innocuous by the secretion of the thyroid gland; but certain toxins are found in the intestinal canal formed by the operation of the bacteria upon the food, and that meat favors their production, while the micro-organisms in milk rather suspend the development of the ordinary microbes usually met with in the alimentary canal.

According to Dr. Blum it is the bacterial toxins of intestinal origin—*entero toxins* so-called—that the secretion of the thyroid seizes and destroys.

DISCUSSION.

Dr. David Marvin, Essex Junction.—Personally I am very grateful and I believe we are all grateful to Dr. Jackson for the excellent paper which he has

presented to us. Auto-intoxication is a poisoning of the organism by the products of its own metabolism. Our body is a receptacle and laboratory of poisons. Poison is present in the food; it is present during normal digestion; and is present in all the tissues and fluids of the body. Now why is it that we are not poisoned? In answer I will say that we are fortified by two different classes of organs; those of arrest and those of elimination. The organs of arrest are the liver, spleen, lymph nodes and gastro-intestinal mucous membranes, and the thyroid gland which arrest toxic products converting them into useful or harmless bodies and then pass them on to the organs of elimination which are the kidneys, skin, lungs and intestines.

It is difficult for us to form at this time a class of diseases which are clearly auto-intoxications. Auto-intoxication from the failure of the function in the thyroid gland is noticed in myxedema where the anatomical changes relate chiefly to destruction of the thyroid gland. Cretinism is due to the absence or defective development of the thyroid gland.

Take exophthalmic goitre. You can all picture a female patient suffering from this disease. You see a young girl with enlarged thyroid glands, protrusion of the eyeballs, cardiac palpitation tremors, gastro-intestinal disturbances and you ask yourself what is producing this condition and your answer is an auto-intoxication. The enlargement is a compensatory hypertrophy produced by over acting activity and the gland has flooded the system with a globulin poor in iodine.

Considering diabetes we find that glycosuria is physiological in Vermont during a certain season of the year. Sugar is a true tissue poison and when it is found constantly present in the system as in diabetes it causes auto-intoxication.

Then we have oxaluria and gout, which are diseases in which the intermediate products of metabolism and the products of retrograde metamorphosis reach the blood.

Uremia is a typical auto-intoxication. The primary cause of this condition is to be found in a failure of the kidneys to perform their normal function of elimination, and the consequent accumulation in the circulation of the poisonous elements of the urine.

Auto-intoxications are observed from excessive production of physiological and pathological products of the organism as in acetonuria, diaceturia and cystinuria. Gastric and intestinal vertigo, dyspeptic asthma and the anaemias are now considered as auto-intoxications which apparently have their origin in the gastro-intestinal tract.

In regard to treatment. We must use preventive treatment. We must fortify our patients against these diseases by keeping the organs of arrest and elimination in a normal condition. Bouchard from experiments considers iodoform, naphthalene and charcoal the best intestinal antiseptics in treating auto-intoxications of gastro-intestinal origin.

Dr. H. C. White.—Dr. Wade of London, an eminent authority on uric acid, had us understand that if we took proper measures with regard to our eating, there would be no such trouble as auto-intoxication. In the foods containing uric acid there is a substance which circulates through the blood and dams the capillaries and that is the cause of all the trouble with the kidneys. A great many take exception to the theory, but it seems to me that the question of diet is worthy of consideration with reference to this particular trouble.

Dr. H. C. Jackson, Woodstock.—The more I study this subject the more unsatisfactory the results seem to be. One good man will deny what another equally good authority will claim has been proven by experiment. It is evident that the study of this disease during the next few years will clear up some important points especially regarding its etiology. I had an opportunity to see personally some of the physicians who were using the salt solution for colitis in the New York Floating Hospital. The saline was used on a little girl, of a little more than normal strength. After about two washings, the temperature would fall almost to normal, and the general condition of the patient would be very much improved.

THE PRACTICE OF MEDICINE AS A BUSINESS.*

By J. F. Blanchard, M. D., Newport, Vt.

We are never more fully impressed with the truth of the saying: "There is nothing new under the sun" than when we attempt to select for discussion some medical topic which has not become hackneyed, some phase of disease or some remedial measure upon which much has not already been written. It is given to but few of the greater lights in our profession to add anything to the sum total of medical knowledge. Most of us must be content to shine only with the light reflected from these greater luminaries. So realizing that I have no special knowledge in any branch of our art that would justify me in taking your time to-day, I have chosen as my topic, The Practice of Medicine as a Business. Having experienced for a score of years the vicissitudes of a country practice with all its harrassing pecuniary features, I feel that perhaps here is a phase of our professional life upon which I may speak with some authority, and that it may be profitable for us to suspend for a short time to-day the consideration of subjects which pertain strictly to the art of healing, and talk business. Medicine is a jealous mistress and demands of her votaries such undivided allegiance, that few have much time to devote to the practical affairs of life. The physician is therefore very seldom a successful man from the dollar point of view. Indeed he is fortunate if, after many years of hard work, he finds himself possessed of enough of this world's goods to enable him to enjoy a few of the last years of his life in comparative ease.

*Read at the Annual Meeting of the Vermont State Medical Society at St. Johnsbury, Oct. 10, 1907.

The majority of practitioners never retire voluntarily from the active duties of their profession, either dying in the harness or being forced to retire by the infirmities of age. We choose our vocation in youth, when we have high ideals and are as often actuated by zeal for doing something for humanity, as by the possibilities of pecuniary reward. But as the years go by we are brought to a vivid realization of the facts that our needs are those in common with other men, and that we must look to this occupation of ours to supply those needs. It is a legitimate and indeed an indispensable branch of human industry, and when faithfully pursued should yield returns equal to those received from other vocations demanding equal ability.

That it does not do this needs no argument to prove. For each instance of a physician who has acquired even moderate wealth from his practice alone, there may be found a score in almost any other class of brain workers, save perhaps the clergy alone. This applies only to those engaged in general practice, the men who work nights and Sundays. We need have no solicitude for the specialist on this score. What are some of the principal reasons for this condition of things? A prominent medical friend of mine says this is in a small part the fault of the profession itself. I want to amend that by saying that it is entirely the fault of the profession, and that it is within our power to improve these conditions.

We have inherited from our predecessors in practice the results of their carelessness in business matters, their indifference to their own pecuniary interests, and we have made no concerted effort to educate the public to a different conception of its obligation to the profession. We have failed to place an adequate value on our services, and we have conspicuously failed to secure prompt and business-like payment of our accounts. Most of us are getting to-day the same fees that we received ten, fifteen and even twenty years ago, notwithstanding that that fee has lost about half its purchasing power. We have seen the wages for manual and skilled labor double, while the hours of labor have been greatly reduced; but somehow we have not seen our hours of labor made shorter, nor an advance in our fees commensurate with the

increased cost of living. What does this great era of industrial prosperity mean to us? We produce nothing. We have nothing to sell at these inflated prices.

It means that the physician's income, not in dollars and cents, but in its power to supply his needs, has decreased about one-half, unless he is doing more work than he formerly did. In the belief that we are doing a noble work, and so merit not only the most profound respect and gratitude of the public, but also its hearty material support, we have toiled on year after year, in a sort of the-Lord-will-provide frame of mind, probably the only class that has failed to adjust itself to the new condition of things. Possibly in our endeavor to maintain a wide distinction between profession and trade, we have felt that we must affect an indifference to the pecuniary returns for our services. If so, we may be well assured that the public will most heartily co-operate with us along that line. Then too, the irregularity of the hours of our work tends to break up even the best business habit. Our books remain unposted and statements are not promptly rendered because we are never sure of a single uninterrupted hour which we can devote to these details.

The successful merchant has a book-keeper to do this part of his work, and has a system to which he adheres, both in giving credit and in making collections. The banks close their doors early and devote the remainder of the day to the book-keeping details of their business. The depositor who has overdrawn his account is immediately notified, and in no uncertain terms or apologetic manner, is asked to make good.

Notices of the exact dates on which notes must be paid are sent some time in advance and failure to comply with these demands results in immediate legal action. As a result of such a system these obligations are almost invariably promptly met. On the other hand our lack of system, our failure to demand and insist on prompt payment for our services, our tolerance of over-drafts on our time and energies, have very naturally led our patients to think that any time will do, and the doctor's bill is the last one paid if paid at all.

Now this is all wrong. No laborer is more worthy his hire than the physician, none has served a more arduous apprenticeship and none

assume graver responsibilities. Nor does he need the spur of poverty to keep him up to his work.

On the contrary, to quote Dr. Cathell, "no man is at his best when handicapped by poverty, and no one can practice medicine with clearness and penetration, earnestness and effect, if his mind be depressed and distracted by debt."

We owe it to ourselves and to the generation of practitioners who will follow us, to put the practice of medicine on a better commercial basis, and we shall not lower the standard of our calling in taking such a step. Some one has said there is not the respect accorded the profession as of old because the profession itself places too small a value on its position. The public fully appreciates the value of legal advice because it has always paid well for it. It will have a better appreciation of the value of medical advice when it can no longer be obtained at bargain prices and on the deferred payment plan. It cheerfully pays the lawyer half and sometimes the full value of property recovered by law.

What part of the value of life and limb saved and health restored does it pay the physician? I think we may safely assume that the public will never come forward and insist that we accept a better fee. Any movement in this direction must originate with us, and I believe we need only fall in line with the general tendency of the times and place a higher value on our services, and the justice and necessity of such action will be recognized. Let us break away from nineteenth century precedents and conform to twentieth century conditions.

DISCUSSION.

Dr. A. B. Bisbee, Montpelier.—I have been much interested in Dr. Blanchard's paper and I can endorse what he has said in regard to the business side of medicine. In a profession like ours, where, as Dr. Holmes said "Three in a bed is the common rule of the household," no one can be expected to look after our material well being unless we do it ourselves. We owe it to ourselves, our families and our profession that we charge reasonable fees for our services, that we keep our books and make our collections in a businesslike way.

On the other hand, it has sometimes seemed to me possible to cultivate too assiduously the commercial side of medical practice. To my mind the practice of medicine is the greatest of all callings, but as a pure business it has few attractions to offer. The man whose ambition it is to accumulate wealth, who would practice medicine for revenue only and whose measure of success is the bank account, is out

of place in the sick room; but if he wants to be of the greatest possible service to his fellows and can be content with a money return sufficient for the needs of himself and his family, where can he find a greater opportunity than in medicine? Sir Andrew Clark divided his professional life into ten years of bread, ten years of bread and butter and twenty years of cake and ale. Many of us may never reach the cake and ale stage but if we do not the fault is not in the existing order of things but in ourselves. The greatest need of the medical profession to-day, it seems to me, is not better organization along the lines of trades unionism, but a higher standard of fitness on the part of those who wish to enter our ranks. The best business assets a young physician can have are (1) professional fitness and (2) a realization of the fact that, as Dr. Osler has said, the master word in medicine is work. If he is properly prepared at the outset and if he makes it the work of his life to increase his professional capacity and usefulness, if he can make fine distinctions in diagnosis, and if he is resourceful and sympathetic in the care of his patients, he has little to fear from contract practice, from hospital and dispensary abuses or anything else. While we do not always like to admit it, the world takes our measure with a good deal of accuracy and we get in the long run about what we merit.

Dr. F. R. Stoddard, Shelburne.—I have been very much interested in Dr. Blanchard's paper. Some of the things he told were things which we all know are true. When I went to the present town where I live, I followed a man who never sent out a bill to any of his customers. I don't think he ever kept a book account. He was a fine physician. He worked night and day. He ruined his life to take care of the people of his town. He was loved by old and young. When he came to leave that town, he had to take the poor debtor's oath, for he had spent all his time in caring for the people instead of caring for himself and his family. I have spent twenty-five years in educating the people to pay their bills and letting them understand that a doctor needed some money for himself and his family. I have them fairly well educated now, but their education is not complete by any means.

Closed by Dr. J. F. Blanchard.—I feel that this is a matter of a great deal of importance to the physicians as a body. We should not, however, let this matter of remuneration overshadow other aspects of work. It is a great work from a humanitarian aspect. But the doctor must live as well as his neighbor, and it costs him a great deal more to live to-day than it did twenty-five years ago. In the first place medical education costs more; he must serve a longer apprenticeship, and there is no recompense for this apprenticeship. His library, instruments and entire outfit cost him a great deal more now than they did twenty-five years ago. There is so much of discovery in medicine to-day that the doctor must keep up with the times and in consequence he must take post-graduate courses often. He should be able to take a post-graduate course every two years or so. Then, he can work better if he does not have to work fifty-two weeks in the year. The public would be benefited if it would so pay the physician that he would be enabled to take post-graduate work and keep abreast the times in modern methods.

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EDITORIAL.

Some dissatisfaction was expressed at the St. Johnsbury meeting of the State Society because the members were not furnished with bound volumes of the society transactions. No one so far as we know failed to appreciate the advantages of a monthly publication. These are almost too obvious to need mention. The transactions of nearly all the state societies are now published in this form. It gives to the papers a much wider circulation than they would otherwise have. It gives to the writers of the papers opportunity to secure reprints of their papers if they so desire. It furnishes a ready means of giving notice of society and other matters of medical interest. Furthermore it gives opportunity for the publication of many papers given at the county society meetings and elsewhere which it would be impossible to print in a single bound copy, and lastly it should if it serves its function properly stimulate medical writing.

There is of course an advantage in having the business of the society proper in a form more readily preservable than the loose journals. To meet this need your publication committee has made arrangements with the Burlington Medical Publishing Company whereby each member will be furnished the twelve issues of the monthly as previously and in addition, if desired, a bound copy of the papers given at and the transactions of the annual meeting of the society. This arrangement we trust will overcome the objections of the previous arrangement and meet the approval of everyone.

We trust that every member of the society will feel that he has a part in the Journal and freely contribute anything of interest to it. If you do this the editors feel that the paper can be made to mean much to you. Of course there are a large number of medical journals, many of which must be larger and of more general interest than the VERMONT MEDICAL MONTHLY, but the local cast of this paper and the fact that it publishes your society transactions and that the other papers it publishes are largely written by your immediate confreres should give it a place in your journal list.

The recent application of the tuberculin test to herds of cows throughout the State and especially in the vicinity of Burlington, has shown tuberculosis to be even more prevalent than was commonly supposed. In many herds one-half or even three-fourths of the entire number responded to the test. The post-mortem on these animals showed the disease to be well advanced in most cases. Milk from cows thus diseased contains tubercle bacilli even though the udder is not affected. The organisms are coughed up and instead of being expectorated, as in the human, they are swallowed and passed through the alimentary

canal, where they are found in the feces. The most scrupulous care, which the ordinary hired man will not take, must be used to prevent the milk from becoming soiled with fine particles of dried feces and thus inoculating the milk. The fact that tubercle bacilli are not more frequently found in milk examined in the laboratory is explained by the fact that they multiply slowly, if at all, in milk, while many other organisms multiply in great rapidity, thus masking the presence of the tubercle bacilli, and further by the fact that there is no established laboratory technique for demonstrating the organisms in milk. The question of having all milk supplied to the city come from cows free from tuberculosis, as shown by the tuberculin test, was the topic of discussion at a recent Burlington Clinical Society meeting and has been agitated at frequent intervals since. Despite a city ordinance and a former state law which made the test economically compulsory, there has been no time when all milk supplied to the city has been produced by cows known to be free from tuberculosis. Over ninety per cent. of the dairymen now supplying Burlington, Vermont, have either had their cows tested this fall or will have them as soon as the test can be made. The City Board of Health feel confident that next year milk licenses will be issued only to those who can show a veterinary's certificate to the effect that their herd is free from tuberculosis. The condition about Burlington is not unlike that in other parts of the State. It is hoped that under the leadership of the local boards of health every city and town will see that one of the great avenues of spreading tuberculosis is closed by demanding that all milk sold in their locality be produced by cows free from tuberculosis.

TRUTH!—The war between eternal truth and everlasting doubt is one that goes merrily on.—*Texas Courier Record of Medicine.*

CARCINOMA OF THE BREAST STATISTICS.

The American Surgical Association, at its annual meeting in Washington, held an interesting and important symposium on the results of operations for cancer of the breast. Greenough (*Surgery, Gynecology and Obstetrics*, July) reported his conclusions, based on 416 cases of primary operation for cancer of the breast at the Massachusetts General Hospital (1894-1903), of which 376 were traced to a conclusive end, result, at an average period of eight years after operation, as follows; Sixty-four cases were alive and well, and 7 died without recurrence over 3 years after the operation. No case with palpably enlarged cancerous glands above the clavicle and no case of cancer of both breasts was cured. Recurrence in the scar occurred in less than one-half the cases. Internal metastases were most frequent in the lungs, mediastinum in the axillary and supra-clavicular glands, the liver and the spine. Seventeen out of 88 cases, or 19 per cent. of those passing the three-year limit, showed recurrence later, and 4 cases developed recurrence 6 years or more after operation.

Dennis (*same*), reporting on the end results of 50 cases, mostly private, concluded that 3-year limit is too short a time to predict a permanent cure. Dennis divides his cases into three groups: (1) Cases all of which have been cured beyond the 3-year limit, and a few up to 25 years; (2) Cases cured beyond the 2-year limit which have died many years after the operation from causes independent of carcinoma; (3) Cases beyond the 3-year limit which have died many years after from metastases in the internal viscera. Group 1 includes 39 cases reported, some of which have lived 25 years without evidence of recurrence, including, however, a few with local recurrences in which subsequent operations were performed without further extension of the disease. All of these cases have lived from 5 to 25 years. Group 2 comprises 4 cases which have been cured beyond the 3-year limit and died of other diseases. These cases were for many years free from recurrence, and death ensued from causes not related to cancer. Group 3 consists of 7 cases where the patients lived for many years after the original operation and died subsequently of metastases. In 4 the metastasis was in the lung and pleura.

In 2 cases it was in the abdominal cavity, and in another in the pelvic glands and femur. In this list of 50 cases, all had reached the 3-year term. Dennis considers that his series of cases demonstrates the clinical fact that (1) cancer of the breast is sometimes permanently cured; (2) that cases may go as long as 18 years and yet have recurrence; (3) *that in the cases in which no return was present the operation was performed almost without exception within six months from the incipency of the disease*; (4) the more radical the operation within reasonable limits, the better the prognosis; and (5) in some cases in which the outlook was unfavorable, as manifested by extensive ulceration, hemorrhage, widespread axillary involvement, the end results have been satisfactory. Palpable axillary involvement, however, according to Greenough, makes the complete removal of the disease more difficult, 12 per cent. only free from recurrence in such cases, as against 29 per cent. where no glands were palpable. Dennis reports one case where he removed a sarcoma of one breast, 14 years afterward removing a *carcinoma* from the other breast. Vanderveer has reported similar cases. Dennis reports 2 cases in which the patients had foul hemorrhagic ulcerating breasts, in which he operated simply with a view to making the patient more comfortable. To his surprise, one of these cases is alive, 8 years after operation, the other 4 years without evidence of recurrence.

BOOK REVIEWS.

OBSTETRICS.—A Text-Book for the use of students and practitioners, by Whitridge Williams. Second edition. D. Appleton & Company, New York and London. \$6 net.

This edition of a popular work is printed from new plates and has several new illustrations. To a well written text this volume adds a splendid selection of illustrations, over six hundred and sixty-six in the complete work. These illustrations add immeasurably to the clearness of the text and go a long way toward making the book one of the smaller treatises on the subject.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS by Herbert Amory Hare, M. D., B. Sc. Twelfth edition. Lea Brothers & Co., Philadelphia and New York.

The demand for this book which has led to the publication of twelve editions together

with the marvelous sale of the last edition is proof enough that it meets an almost universal need. The twelfth volume is brought thoroughly up to date by the addition of much new matter and the thorough revision of the whole text. Particularly well written is the section devoted to remedial measures other than drugs. The text is illustrated where there is need to make more clear, the general practitioner will find no book more useful in his daily routine of treating the sick than Hare's Therapeutics.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

THE MILK PROBLEM.

MUNICIPAL REGULATION OF THE MILK SUPPLY.

G. W. GOLER, Rochester, N. Y. (*Journal A. M. A.*, September 28), speaks of the necessity of insuring purity and wholesomeness of the milk supply of our cities, and gives the details of the measures needed for that purpose. He points out also the difficulties of meeting the requirements from the suppliers' point of view, and says that these should also be considered in the discussion of the subject. Nevertheless, the inspection rules must be rigid, and he gives them in detail, both as regards the city and country ends of the supply. They include, in the case of a large city drawing its supply from a district too extensive to be inspected from a single urban center the establishment of one or more substations, fully equipped with laboratories, etc., and with each its own dairy district. Near each small city and in connection with the substations of a large one, he says, there should be provision for a small experimental dairy farm, where all the operations of milk producing should be carried out for the educational benefit of the dairymen, and Goler suggests the establishment of such a one in a park in each city or in connection with the park system of a city. He thinks this would be a good field for endowment by one of our wealthy philanthropists.

THE MILK SUPPLY OF NEW YORK CITY.

T. DARLINGTON, Commissioner of Health, New York City (*Journal A. M. A.*, September 28), gives an account of the methods employed in the sanitary control of the milk supply of the City of New York. The milk used comes from 600 shipping points in six states, and from between 30,000 and 40,000 dairies and farms, and the city inspection covers all of these as well as the transportation and the city retailers, down to the household in which the milk is kept prior to its use. Of course the health department has no legal jurisdiction outside of the city, but as it can control the sale its authority is respected and the rules it prescribes are obeyed. During 1906, 14,085 inspections were made outside the city, all the creameries were inspected, many of them several times, and the dairies are rapidly being covered. In the city there are 14,107 dealers holding permits for the sale of milk, without which no sale is allowed and which are granted only after inspection by the department. The city is divided into districts, to each of which is assigned an in-

spector who makes frequent reinspections of all places where milk is sold, and who is held responsible for conditions in his district. During 1906, 130,871 inspections were made in the city, 138,505 specimens of milk were examined 41,395 quarts of milk were destroyed, 678 arrests were made, and fines were imposed amounting to \$13,045. In 1905 the fines amounted to over \$3,000 more, indicating an improvement in the character of milk sold. The most intricate question the board has to meet is the control of the milk supply after it leaves the retailer, and the proper care of the milk in the household can only be insured by properly educating the public as to its importance. The greatest danger is in the summer months, and, to meet the needs, the department has its "summer corps" of physicians and nurses who canvass the tenement district and, by oral and written instructions, endeavor to show to mothers the necessity of proper care and preparation of the milk for babies. The milk supply of New York is now better than ever before and is constantly improving. Only the expansion of the present system and more frequent inspections are needed to solve the problem fully. It is perfectly possible. Darlington thinks, to insure a sanitary milk supply in any city if systematic inspection is maintained and the rules of cleanliness enforced. By a recent regulation, all persons receiving milk must immediately have the bottles or receptacles cleaned on emptying, and it is required that they shall not be used for any other purpose than containing milk. In case of typhoid fever, the milk supply is at once subjected to a special scrutiny. The article concludes with a statement of some of the findings of an advisory commission appointed by the mayor and composed of well-known physicians, as to how the milk supply can be improved.

BOSTON'S CAMPAIGN FOR CLEAN MILK.

J. O. JORDAN, Boston (*Journal A. M. A.*, September 28), gives a history, illustrated by figures, showing the results of the campaign inaugurated by the Boston Board of Health in 1904. The initiatory step was the adoption of a standard limiting the number of bacteria in milk to 500,000 per cubic centimeter and prohibiting the sale of milk having a temperature above 50 F. The bacteriologic examination also permits the detection of milk from diseased animals and following up of the infection to the dairies themselves. The contracting firms have cooperated with the board of health to a considerable extent by inspection of dairies, distribution of circulars of information to producers and even by the establishment of private laboratories. The Massachusetts State Board of Health also exercises supervision over the dairies and cooperates with the local board. The result has been a great improvement in the milk supply of the city. A possible outcome agitation of the milk question is the centralizing of the milk supply in cities in the hands of large concerns and the present tendency is toward such a result. The education of the public as to the necessity of clean milk is, however, the matter of the greatest importance of the present time.

THE MILK SUPPLY OF WASHINGTON, D. C.

G. L. MAGRUDER, Washington, D. C. (*Journal A. M. A.*, September 28), gives an account of the measures taken to secure a proper milk supply in the city of Washington during the past year. The prevalence of typhoid fever had called attention to the milk

supply, and an investigation by the Bureau of Public Health at the instance of the District Commissioners had revealed a deplorable state of affairs, 10 per cent. of the cases of fever being directly traceable to milk infection. In September, 1906, Dr. Magruder had a conference with the Secretary of Agriculture, whose interest was aroused and an inspection of dairy farms was instituted as had been recommended by a committee of the medical society of the District as far back at 1894. Remarkable conditions were found to exist. The water supply of 60 dairy farms, taken without selection, was found unsafe in as much as 25%; 45% showed the presence of colon bacillus. The investigations have been followed up by both the Department of Agriculture and Public Health Bureau, and the result has been the organization of the District Milk Commission under the chairmanship of ex-Surgeon-General Sternberg of the army, and including in its members a number of the scientific officials of the Health Bureau and the Agricultural Department. The recommendations and reports of this commission and subcommittees are given in abstract and form the greater part of the article.

MEDICINE.

NERVOUS ELEMENT OF ORGANIC DISEASES.

BISHOP (*Medical Examiner*, October, 1907) in an article on contraction of the arteries of nervous origin as a cause of heart, brain and kidney disease says: It has seemed to me that there is a class of these diseases that has its origin in the central nervous system, and that is induced by continuous application to mental toil, and by indulgence in the vice of worry. The same physiological results are found in insanity where the unhinged mind is subject to over activity.

Hypertonia vasorum is a perversion of the physiologic tone of the blood vessels. There exists at all times a force of nervous origin that maintains the blood vessels in a condition of contraction suitable for the proper circulation of the blood. Without contraction of the blood vessels circulation is impossible, because the relaxed vessels would only be about one-third filled by the amount of blood ordinarily contained in the body. Notice the immediate settling of the blood into the dependent vessels after death, and the comparative emptiness of the arteries. The tone maintaining function of the nervous system is carried on through a center in the medulla, but it has seemed to me that this center received its stimulus from the brain so that the brain exerts a tone maintaining influence over the muscles in the coat of the blood vessels analogous to that which the motor areas in the brain exerts over the voluntary muscles.

The study of hypertonia vasorum in its early stages suggests that it is a matter of pathologic physiology rather than the remote result of pathologic anatomy. We do not agree with the axiom laid down by a number of writers that the hypertension is invariably secondary to nephritis, though we do recognize the fact that the kidney is damaged very early in many cases. This statement refers, of course, to the cases that are the subject of our paper—namely cases of nervous origin. It seems clear that the tone maintaining function may also be overstimulated by the irritation of the brain from material that reaches in through the blood as the result of excessive food, alcohol or bacterial activities, and the products of faulty intestinal digestion.

The fact that the nervous contraction of the arteries has not been recognized sufficiently has led in very many cases to the belief in the necessary existence of disease of different organs and misdirected energy has been concentrated upon the hygiene of digestion that should have been directed to the hygiene of the mind. The fact is that for most men there is a limit to the amount of strain that the mind can endure without inducing an overaction of the tone-maintaining function and consequent high arterial tension with damage to the brain itself, the heart and the kidneys. That work accompanied by worry is much more apt to produce this result than when not so accompanied is not disputed by any one who has given the subject thought. Hypertonia is very common, not only among wealthy and successful men of affairs, but is found among the immigrant classes with great frequency who, stimulated by the opportunities in a new country, strain every element of mind and body to realize the full benefit of freedom. The lower East Side of New York shows many examples among those who have come to us from foreign shores.

The treatment of all stages of the disease involves the same principles though the more advanced the case the more radical must be their application. In persons who are merely threatened with hypertonia it is enough to correct the wrong plan of life by inculcating a reasonable ambition and establishing the habit of mental relaxation during part of every day, and of interruption of work during a part of every year. Such a person should shift all unnecessary burdens of responsibility,—should eat plain food, and exercise a great deal. In well established cases where albuminuria has developed, or where there have been slight attacks of disturbed cerebral circulation, as indicated by slight paralyses or a very temporary aphasia, the patient should be put upon the vaso-dilators, particularly nitroglycerine, should be taken only a part of the time, which and the iodide of soda should be administered in small doses. Iodine seems to have the property of arresting and postponing arterial degeneration from physical strain. We have seen patients with well-marked threatenings of heart, brain and kidney disease from contracted arteries, due to this cause, go on for a good many years without serious trouble when they have been guarded by the judicious use of these drugs.

HEMOPTYSIS DUE TO TUBERCULOSIS.

J. M. ANDERS, Philadelphia (*Journal A. M. A.*, September 28), discusses the symptoms, etc., of tuberculous hemoptysis, first calling attention to its pathologic etiology. We are apt to ascribe any early pulmonary bleeding in consumptives to congestion of the bronchial mucosa, and Anders shows that it is probable, rather, that minute areas of necrosis already exist when these bleedings occur. That a high grade of congestion, however, is a factor, is shown by the influence of physical strain, and the heart's condition must be also considered. Patients with chronic valvulitis undoubtedly have more frequent hemorrhages. Hemorrhages from eroded vessels and miliary aneurisms are the more frequent causes of fatal results, and less frequent occurrence of pulmonary hemorrhage in advanced cases of consumption is ascribable to endarteritis, causing gradual thickening and greater resistance of the vessel walls. Undoubtedly there is in many cases an existing hemorrhagic tendency and hereditary taint is often obvious. Aggravation of the cough and muscular exertion are frequent exciting causes.

Anders points out that the frequency of the symptom is very marked, and he agrees with Osler that it is a feature in from 60 to 80 per cent. of all cases. His own experience does not show greater frequency in females than in males, and he says that sexual differences are not as great in this regard as has been claimed. Season has a decided influence, as shown by his table. More cases occur in the spring and summer months than in the winter. We must regard hemoptysis, he says, as the result of existing tuberculosis, although other signs and symptoms are lacking. The attack does not seem to have any marked effect in reducing temperature in the majority of cases, and sometimes there may be a notable rise, which he is inclined to ascribe, sometimes at least, to exacerbations of tuberculous inflammation from the setting free of toxins, etc. The majority of bleedings occur after secondary infection with the streptococcus. There is a form of periodic hemorrhage, though it is not common. In his summary of treatment, Anders remarks that prophylactic measures are unduly neglected. The importance of rest, avoidance of stimulants are hardly duly appreciated. A residence away from the sea coast and a cold dry septic air are beneficial, as pointed out by Curtin. Among drugs, he relies mainly on opium, discontinuing it, if abundant moist bubbling râles are heard over the uninvolved portion of the lung—a rare event, except in case of rupture of a miliary aneurism. In case there should be a ruptured aneurism with profuse hemorrhage and danger of inundation of the uninvolved lung, cough should be encouraged, rather than suppressed, and opium is contraindicated.

OPHTHALMO-TUBERCULIN TEST.

BALDWIN (*N. Y. State Journal of Medicine*, October, 1907), writes as follows of the ophthalmotuberculin diagnostic test recently introduced by Prof. Calmette of Lille, France:

This method is a modification of the cutaneous tuberculin test as applied by V. Pirquet, and depends upon the susceptibility acquired by the skin of tuberculous subjects to the presence of the poison of this disease.

Instead of scarifying the skin, as in V. Pirquet's method, a drop of a weak solution of tuberculin (1 per cent.) is instilled into one eye. A more or less marked hyperemia follows in tuberculous infected individuals which is absent in the majority of supposedly non-infected persons.

The redness develops in from three to forty-eight hours, and, in some, instances, is accompanied by a purulent secretion and edema of the lids when the reaction is severe, yet there is no marked discomfort or any constitutional effect or local reaction in tuberculous lesions. The reaction quickly subsides in most cases and produces no injury to the eye. Diseases of the lids and eye contra-indicate its use provisionally until further experience is obtained.

The author made use of two solutions for diagnosis, beginning with the weaker, to avoid unnecessarily severe reactions, followed by the stronger in the opposite eye in forty-eight hours if no reaction occurred to the first test. A measured drop was used for the sake of accuracy, and the the solution in normal saline was prepared in sealed tubes and sterilized.

One hundred and thirty-six persons have been tested by the author and his colleagues to date, five of whom were controlled by the subcutaneous test. Of forty-four tuberculous patients in all stages,

forty-two reacted positively, one was doubtful and one (advanced miliary) negative. Of none healed tuberculous persons (1 to 17 years healed), eight reacted and one was doubtful. Of twenty-six individuals suspected because of history, symptoms or physical signs, eight reacted positively, four doubtful, and fourteen negative. Of fifty-seven supposedly healthy persons, sixteen reacted, eight of whom gave a family history of tuberculosis, six of close contact with tuberculous persons and only two in which no such history was obtained. Among the forty-one who did not react, twenty were farmers and guides living in the open air; most of the others were in contact with tuberculous patients. In general, the results correspond to those obtained with the subcutaneous test. Of the six who were thus tested, all were negative to both tests save one who was known to have lues and reacted to .005 c.c. tuberculin. The figures with supposedly healthy people are not different from those obtained with the subcutaneous test, but idiosyncrasies must possibly be considered as playing some part in causing reactions until further experience and post-mortem observations shall establish the limits of specificity.

THE PATHOGENESIS OF PERNICIOUS ANAEMIA.

TALLQVIST (*Zeitschr. für. klin. Medizin*, Vol. 61, Nos. 5-6.), comes to the following conclusions concerning this disease. (1) In the proglottides of *Bothriocephalus latus* there are contained, together with other active principles, a fatty or lipid substance with marked hæmolytic properties. This substance is not a product of secretion, does not occasion the production of antibodies, is *koktostabile* and resists the action of proteolytic ferments. (2) In experiments with animals, this lipid substance is capable of causing anæmia, whether administered subcutaneously or *per os*. It is a feebly acting agent, but its ability to induce anæmia is unquestionable. (3) This experimentally induced anæmia is characterized by a high color index, by a normal or reduced number of white cells and very frequently relative lymphocytosis, by absence of acute processes and characteristic intermissions. The general condition of the animals was little affected and the autopsies showed the changes in the internal organs found in pernicious anæmia. (4) In the pernicious anæmia of *Bothriocephalus latus*, the parasites in the majority of cases, are found to have lost substance, either from a partial or complete solution of some or all of the segments. In this process of solution the hæmolytic substance is liberated and absorbed, and produces the characteristic anæmia of *Bothriocephalus latus*. (5) It is not known what the agencies or conditions are that cause this solution of the segments. (6) The other tapeworms do not contain this hæmolytic substance. (7) Normal organs, and especially the mucous membrane of certain portions of the gastro-intestinal canal, and certain of its glands, also contain a hæmolytic substance with the same properties as that formed by the lipid substance of *Bothriocephalus latus*. (8) Since in cystogenetic pernicious anæmia certain alterations in the alimentary canal are usually found, it is possible that some cases of pernicious anæmia are due to qualitative or quantitative changes in the transformation of fats, resulting in the formation of a pathologically formed fat with hæmolytic properties. (9) Similar hæmolytic lipid substances have been found in malignant tumors, and have been regarded as the cause of the anæmia accompanying those growths, especially in the case of gastric car-

cinoma. (10) It is highly probably that certain substances of a lipid nature play an important role in the pathogenesis of certain forms of pernicious anæmia, and that the gastro-intestinal tract is especially concerned in the causation of these forms. The duration of the process is a very important factor in the production of these hæmolytic anæmias. The anæmia appears only after the destructive process has occasioned relative insufficiency of the hæmatopoietic system.—*Medical Notes and Queries*, September.

INFANTILE TUBERCULOSIS.

HOLT (*Archives of Pediatrics*, September, 1907) writing on infantile tuberculosis says that its frequency has not been fully appreciated because we have not been accustomed to look for it with sufficient thoroughness. A more careful application of the means at hand—the presence of the bacilli in the sputum and the tuberculin test—has demonstrated its commonness. During the nineteen months ending May 1st, 1907, sixty-seven cases of pulmonary tuberculosis were treated in the Babies Hospital. Sixty-two of the patients were under two years of age; fifteen under six months. The diagnosis in fifty-four cases rested on finding the bacilli in the sputum; in ten on post-mortem findings. Of the remaining three one had tubercular meningitis as shown by finding the bacilli in the fluid from lumbar puncture; one responded to the tuberculin test and one gave typical clinical symptoms.

The method of obtaining sputum at present followed, and the one which has given the most satisfactory results, is to excite a cough by irritating the pharynx, and then to catch the sputum brought up into view, upon a bit of gauze or muslin. The cough may be excited by a spoon or a tongue depressor, or better, by a small bit of muslin in the jaws of an artery clamp. Upon this the secretion is easily secured when it is brought into view by the cough. Muslin is better than gauze or absorbent cotton. Swabs prepared as suggested are placed by the child's beside and, when the nurse notices a severe paroxysm of coughing, the child is picked up and, if possible, the sputum is obtained. Inversion during the paroxysm of coughing sometimes causes the infant to discharge a considerable mass of mucus into a sputum cup. By the procedure mentioned it has not been found more difficult to obtain good sputum for examination than in corresponding stages of the disease in adults.

The cells found in the cerebro-spinal fluid in tuberculous meningitis are generally few in number, and these are usually mononuclear cells. Only twice in the 42 cases were cells present in sufficient numbers to give a marked turbidity to the fluid. This is in striking contrast to the fluid seen in cases of cerebrospinal meningitis and in those of pneumococcus meningitis.

It has been believed by many that the absence of glucose is of importance in diagnosing meningitis from the normal cerebrospinal fluid. Fehling's test was applied in 32 cases. The presence of sugar was demonstrated in 15, but it was absent in 17 cases. No conclusions could, therefore, be drawn from the reaction.

It has been our custom to seek for bacilli in the sputum in every case of tuberculous meningitis, no matter whether pulmonary symptoms existed or not. They were found in 22 of the 42 cases, although in only 5 of these was there any consolidation of the lung, and in 9 there were no signs whatever in the

chest. In the remainder there usually was some general bronchitis, which in most cases appeared late, and was more probably not of tuberculous origin.

RAPID RECOVERY FROM SYNCOPE.

HAROLD B. WARD (*Medical Notes and Queries*), of Philadelphia, points out that the unconsciousness and fall of a fainting person is a natural provision to overcome cerebral anæmia by permitting the blood to reach the brain without working against gravity. It is known that a patient found unconscious from an ordinary syncopal attack can be most rapidly resuscitated by laying him in supination with pressure on the abdomen by the hand or, better, by the flexed thighs. To accomplish this the patient should be made to sit on a chair or other high object and lean forward with as much flexion of the body as possible, even to bring the face between the knees. By this posture the head is brought to the level of the body, but what is of more importance, the flexed thighs pressing on the abdomen force the blood from the mesenteric vessels into the brain. If the patient cannot or will not voluntarily flex the body sufficiently he should be assisted by being pushed down and held in the position until long after all objectionable sensations have ceased. This leaning posture often gives instant relief or is a valuable prophylaxis for an oncoming syncopal attack. During minor operations where anesthetics are not employed, or during slight surgical dressings, by holding the patient in the flexed sitting position the pain, nausea, vertigo, and discomfort may very largely be prevented. It is an especially valuable procedure for dispensary or office work, being convenient, rapid and effective. In this connection it may be well to recall Lauder Brunton's method of overcoming brain-tire of a writer by resting his head, face down, upon the table for a few moments.

SURGERY.

NEW OPERATION FOR HERNIA.

MOSCHCOWITZ (*N. Y. State Journal of Medicine*) describes a new operation for the radical cure of femoral hernia which he claims meets the requirements for such an operation better than any of the classical procedures.

The operation proper can be divided into following steps:

1. For most cases a cutaneous incision, two to two and one-half inches in length, parallel with and about one inch above Poupart's ligament, will be perfectly satisfactory; in exceptional instances, to be explained later, a short vertical incision may be added at the internal end. (Fig. 1).

2. Division of the aponeurosis of the external oblique in the direction of its fibres.

3. Retraction of the lower flap exposes Poupart's ligament, the posterior edge of which forms a convenient guide to the neck of the sac. Retraction of the upper flap exposes the conjoined tendon and the internal oblique and transversalis muscles. These two muscles, as well as the exposed round ligament (or spermatic cord) are retracted upward with a blunt hook, exposing the transversalis fascia; this is also incised and retracted, in order to expose the neck of the sac (Fig. 2).

4. The sac, just before it dips beneath Poupart's ligament, is now incised, and its contents are reduced in the usual manner. Whatever operative procedures are indicated in adherent or strangulated forms can be performed; the strangulating ring can be easily incised under the guidance of the eye, and abnormalities of the obturator artery may be readily avoided.

5. A dressing forceps is introduced through the internal femoral ring to the fundus of the sac, and if no adhesions are present (particularly if the hernia is of recent origin), the sac can be entirely everted, and pulled through the ring, so that the hernia is converted into a direct inguinal hernia (Fig. 3). If this simple procedure is impossible, the sac may be dissected out, either by retracting the lower skin flap, or through a short perpendicular incision, continuous with the original incision; or the sac may be cut off at the internal femoral ring, and the distal part can be obliterated by a small incision over the saphenous opening, with subsequent drainage. The neck of the sac is now obliterated flush with the peritoneum either by transfixion and ligature, or by suture.

6. Closure of the internal femoral ring. In order to expose the ring properly, the peritoneum is pushed bluntly upward with a broad flat retractor. When this is done the following anatomical structures are presented: Anteriorly Poupart's ligament, externally the external iliac vein and the deep epigastric vessels, internally Gimbernath's ligament, and posteriorly, but on a slightly upper level, Cooper's ligament, and the pectineus muscle and fascia; while above is the retracted peritoneum, transversalis fascia, internal oblique and transversalis muscles, and aponeurosis of the external oblique. The internal femoral ring is thus perfectly exposed, and with the greatest ease and safety we may proceed to close it. With a strong, small, full-curved needle, armed with strong chromicized catgut, sutures are passed between Cooper's ligament and the periosteum of the pubic bone on the one hand, and Poupart's ligament on the other, over the site of the femoral ring (Fig. 4). When these sutures are tied, it will be seen that Poupart's ligament has been approximated to the pubic bone, thereby completely obliterating the internal femoral ring. In a majority of instances two or three sutures will suffice to entirely close the ring. The most external suture goes as near as possible to the external iliac vein, without constricting it; while the most internal suture includes also Gimbernath's ligament (Fig. 5).

7. Thus far the operation resembles in most particulars that of Ruggi; but as I have already stated, the displaced Poupart's ligament renders the patient predisposed to the occurrence of an inguinal hernia. In order to obviate this, the next series of sutures is passed in the following manner: The round ligament, or spermatic cord, having been replaced into its normal position, chromic gut sutures to the number of four or five are passed, including the internal oblique and transversalis on the one hand, and Poupart's ligament just anteriorly to the first series of sutures, on the other; care must be taken to leave just sufficient room at the inferior angle for the emergence of the round ligament or spermatic cord. When these are tied, it will be seen that any possibility of a new formation of an inguinal hernia has been excluded.

8. Suture the aponeurosis of the external oblique, and of the skin.

THE RELATION OF THE MEDICAL PROFESSION TO THE PUBLIC HEALTH.

*By Henry D. Holton, A. M., M. D., Secretary
State Board of Health.*

On every hand physicians are appreciating the old maxim that in sickness it is not a disease to be treated, but a person.

The great medical achievement of the nineteenth century was the discovery of dirt; that of the twentieth will be cleanliness, sunlight, fresh air. Pure food and pure drink will take the place of drugs.

We are living in the great commercial and pleasure-loving period of the world, when the two questions that are presented to every enterprise and period of life are, "Will it pay?" "Does it thus promise to give the greatest amount of gross pleasure that is possible?" It is not to be expected that the profession of medicine should escape this commercialism. Hence, we are bound to recognize the fact that there are some men who have entered the profession, not from the humanitarian and philanthropic side, but purely as a means of conquering a commercial success. There are, however, many more that have read its history from Hippocrates down to this 20th century and are fully imbued with its dignity, Christian benevolence and high ideals of ministering to poor, weak, suffering humanity. This was particularly noticeable last week at Atlantic City, where the American Public Health Association met, an association of the sanitarians of North America and its contiguous islands, men of high character and mental vigor, who, in commercial or governmental circles, would not only command by their services large pecuniary rewards, but who would be honored as statesmen and captains of industry. However, they were aspiring for something higher and nobler, that which would prevent or alleviate the sufferings and sorrows of mankind, by preventing the destruction of life, and would expand the span of human life by placing in better environment the peoples of the world. The majority were medical men, but "there were others"—scientists, who are spending their lives in the laboratory searching out the causes of destruction; the sanitary engineer, seeking the best means of providing sanitary homes supplied with pure air and water, or for preventing the pollution of both; the sociologist, seeking for the adoption of

those ethical principles which tend to ameliorate the conditions of life. The medical men, the majority, were representatives of the great mass of the profession who were seeking to apply the principles evolved by these special students to the actual necessities of every day living; by special study they were desirous of formulating such rules and regulations as would assist the general practitioner in preventing, controlling, or stamping out the "pestilence that walketh in darkness" and "the destruction that wasteth at noonday."

The general public are demanding of their physicians that they shall be sanitarians; more and more are they making the inquiry, "What can we do to prevent various forms of disease?" They desire to be told if their manner of living is conducive to health and a long life. It is true that while an increasing number seek this advice, there are many more who still look upon it as officious and decline to accept and act upon it. However, each year finds this class diminishing. The prominent men of the profession to-day are without exception the doctors who are insisting that individuals and families under their care shall follow sanitary methods in their daily lives. The importance of plenty of pure air in the home, that the supply of water, milk, and all food products shall be pure and free from adulteration, are all recognized as indispensable prerequisites to the health of the community. It is essential that every practitioner of medicine shall keep pace with the growing demands of the public. Every state but Idaho has a Board of Health, or a Health Department, including the District of Columbia, Hawaii, Cuba, Canal Zone, Porto Rico and the Philippine Islands. All of these boards are required to execute the health laws and to promulgate rules and regulations for that purpose. The duties are varied and extensive, as in this state, when medico-legal investigations are required at the hands of the state board. In all, the medical profession, in the eyes of the law, stands near to the health boards. Vermont was one of the first to establish, under the direction of the Health Department, a laboratory to which the people of the state, through their physicians, could appeal for aid in the diagnosis of various diseases, free of charge. The area of the state is so small and the means of communication so easy that every physician in the state can avail him-

self of the aid offered by the Laboratory of Hygiene for this purpose. The state board were further authorized "to publish a periodical, the objects of which shall be to give the results of the work done at the laboratory; also the latest approved methods for the protection of the public health." In accordance with this provision the quarterly Bulletin has been published, the last number, in September, being No. 1, Vol. VIII. Ten thousand are issued every quarter, besides various circulars of information containing rules and regulations to aid the practitioner in his care of various communicable diseases.

The law relative to vital statistics brings every practicing physician into close relation with the State Board of Health, in that it requires the physician to report every birth and death that occurs in his practice. The importance of these reports is but imperfectly appreciated, although as early as 1631 the colony of Virginia required that magistrates and ministers should report marriages, births, and deaths, in 1639 the colony of Massachusetts made similar requirements and seven years later the Plymouth Colony followed their example. The government of this state appreciated the necessity of providing for these reports as early as 1856, when the first law was enacted. The first report was made in 1857. This was for forty-one years in force. In 1898 the present registration law was passed. From fifty years of registration we have very interesting and instructive results. We find that in comparing the first registration report, made in 1857, with the last, for 1906, that, taking the deaths from the communicable diseases of typhoid fever, measles, scarlatina, whooping cough and tuberculosis in this state, there were in 1857, 1,179 deaths, or one to every 266 of the inhabitants. In 1906, there were 613, or only one to every 571 of the inhabitants. In 1857 tuberculosis alone caused the death of 848, or one in 370. In 1906 the deaths were 453, only one in 772. Typhoid fever, in 1857, caused 169 deaths, one in 1,858. In 1906 there were only 70 deaths, being one in 5,000.

There has been an increase in certain diseases, as there has been throughout the country. In 1857 cancer caused 73 deaths; only one in 4,301 persons. In 1906 it added to the death roll 287, being one in 1,219. Pneumonia, in 1857, led with 163 deaths, making

one in 1,926. In 1906 there were 575 deaths, or, one in 608. In 1857 organic heart disease destroyed only 125, being one in 2,512 persons. In 1906 there were reported from this cause 577 deaths, being one in 606. Apoplexy, in 1857, caused death in 71 cases, being only one in 4,422. In 1906 the number of deaths from this cause was 430, or one in 813.

We also find that in the first period only one person in 754 lived to be eighty years old, or over, while in the last period one in every 425 was eighty or over.

The average age at death was, in the first period, 38; in the latter, 48. Fractions have been discarded in the above figures.

While the physician is paid for each birth and death certificate he reports to his town clerk and is subject to a penalty for *not* making a prompt return, he, in many instances, neglects to perform this duty, so important, until he is urged by other officials to comply with this legal requirement. Every child born is immediately a citizen of the state, with the inherent right to have this event in his or her life recorded. Upon a proper record made at the time much may depend; his or her right to citizenship and the protection as a citizen; and, in future years, the right to inherit property. In the case of death, the state has an interest in the cause, and, if the result of violence, in order that, for the protection of society, the perpetrator may be brought to justice. The cause of death must be definitely and correctly stated, in order that it may be correctly classified, not only by the Census Bureau at Washington, but by the Secretary of the State Board of Health, to whom the town clerk must send an abstract of all marriages, births and deaths. In this way we learn of the prevalence of death from various causes, from which we may seek the necessary provisions required to prevent the mortality from these conditions. The physician last in attendance is required to make out a certificate of death upon blanks furnished by the state. You should be careful to fill out not only the one to give the cause of death, but *all* the blanks in the certificate should be filled. These certificates remaining in the town clerk's office as a permanent record, if omissions are found in the certificate, it may be impossible to classify or identify, should it be necessary in the future so to do, the person whose death it

records. For instance in the certificate of James Bowler, the birthplace and age not being given, it might not be possible to distinguish this person from one James F. Bowler, born in New York State, the parties not being sure that the person they seek to locate had a middle name, although he was, they think, born in New York, the omission of the initial of the middle name and perhaps of his father's name creating the doubt. Remember that not a question has been printed on the certificate without a good reason and careful consideration. The cause of death should be of a definite disease. We have written from 200 to 250 letters in order to make the causes definite in the returns of the first six months of the present year. We report all deaths to the Census Bureau at Washington. They use the International Classification (by request of our board a copy was mailed to every physician in the state). For instance, cause of death is given as "cancer." Without more definite information it is impossible to classify this case; we must write to know what organ or part of the body was affected. Kidney disease is given as a cause; we must know what form of kidney disease. Marasmus or malnutrition is given. This is especially indefinite. Was it from congenital syphilis, rachitis, or tuberculosis? If a diseased condition cannot be diagnosed, it is much better to state that the cause of the wasted condition was unknown and at once the case goes into the indefinite column. The same with "heart failure" or "paralysis of heart"—give the disease that led up to this, or say "cause unknown." Many more examples might be given, but these will suffice to make plain the necessity of definite causes being stated, which if you will do, will, I assure you, make me exceedingly grateful.

Write plainly, remembering that the town clerk is not familiar with medical nomenclature, that would avoid our receiving such causes of death as "rye meal," "epidemic chipienza" and "cancer of the viterus," for, you must remember that the secretary does not see your certificates, but only the town clerk's copies.

The complaint has been made that the state requires service without compensation. Is this the fact? It is true that the doctor is expected to give a large amount of information to the public regarding sanitary matters when

there is no pecuniary reward given. Every physician is required to report every case of tuberculosis within one week after such case applies for treatment. I regret to say that not more than half as many cases are reported annually as there are deaths, while it is well known that there are on an average three cases to each death. For all this service the state does much for every doctor. First, it has given, for the purpose of aiding you in your diagnosis, the laboratory. Your books, instruments and team are exempt from attachments. In case your patient dies, your claim for attending him in his last sickness is a preferred claim. On the whole, do you not think the state is quite generous?

The relation of the general practitioner to sanitary work is really a very intimate one. The State Board of Health of Vermont desire to thank the members of the profession for their cordial support and encouragement, in various ways aiding us in carrying forward the work in the state. Many of you know full well that the work which has been done (I refer especially to my colleagues on the board) has been a work of love and not because of any present or prospective pecuniary recompense. I am sure that in the future there are for them the

"Blessings that ever wait on virtuous deeds,
And though a late, a sure reward succeeds."

DISCUSSION.

Dr. C. S. Caverly, Rutland, Vt.—Dr. Holton, I think, is competent to act as spokesman for this Board on this subject. I suppose the members of the State Medical Society have got accustomed to being reminded of their delinquencies. They are chided very kindly, however, so far as this Board is concerned. Dr. Holton has referred to the subject of vital statistics. Public health work is altogether in the hands of the medical profession. Boards of health do not amount to anything without the cooperation and backing of the medical profession. They never have and they never can. And public opinion is back of all. Unless public opinion is right, we can not get public health legislation. Unless we get public health legislation, we get no official recognition, and really can accomplish very little except through the gentle means of moral suasion.

Every doctor is a missionary on the subject of preventive medicine. In this way the medical profession can control the laws and the enforcement of them. The medical profession is very important to the enforcement of these laws because they come in such intimate contact with preventable diseases. The physicians are the first to see them. Unless physicians enter heartily into the spirit of these laws, reporting these diseases and making every diagnosis as early as can be, and using all scientific aid to that end, they can nullify to a great extent our public health acts.

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The State Board of Health is absolutely dependent upon you gentlemen. It appreciates the very loyal support which it has had from the bulk of the medical profession. I think the support has been amply demonstrated by the enactment of our public health laws and by the establishment of a laboratory which the Legislature has placed in our hands.

Closed by Dr. H. D. Holton.—I would say that when you are in doubt about anything, the Board will be very glad to give you any information they have or aid you in any way it is possible. The matter of the care of slaughter houses in the State has been alluded to. This matter is by law under the direct control of the local boards of health. The State Board can advise and have done so by writing to all of the local health officers and recommending the adoption of certain rules and regulations with reference to their care and inspection.

DISCUSSION ON DR. HAWLEY'S PAPER.

PROF. J. M. GILE, Boston, Mass.—The doctor did not put it any too strongly when he said that diseases of the rectum were very poorly recognized by the general practitioner for just the two reasons which he mentioned. It seems to me the hesitation is on the part of the doctor for the failure to recognize well marked, even advanced cases of rectal disease. The name "piles" has come to cover a multitude of sins. Or the patient is supposed to be suffering from a single fistula which may be just the beginning of an epithelioma. If we diagnose this case simple fistula, the patient is lost. He passes to a hopeless condition.

The question of methods for operation in hemorrhoids is not one which I wish to enter into for a lengthy discussion. For a long time I used ligature and then the cautery and now I am excising and then sewing up with a clean suture line. The benefit of this third method which is tentative is that the patient does not get as much pain after the operation as he does by either of the other two methods. By the other methods there is no surgical procedure in which the patient gets as much distress from three to ten days as when the operation is done by the clamp and cautery or ligature. I believe in a clean excision and a clean line of suture. I do not have any great fear from hemorrhage. On the other hand when done with the clamp and cautery, the eschar which it leaves shuts off the channels of infection, but when it sloughs it leaves an ulceration on the surface, the eschar coming away before the ulcer heals. That is my reason for changing from the cautery to the suture.

DR. J. B. WHEELER, Burlington.—I have enjoyed listening to this paper, and I don't know that there is very much to add to it. I have been very much impressed with the desirability of making an examination of every case of rectal trouble and always take pains to impress this on the minds of the students who come under my supervision. The point brought out by Dr. Hawley is just and should be generally adopted. We are very apt to overlook rectal diseases, for it is not very pleasant for us, or for our patients, to make a thorough examination and a good many conditions which are trivial at first are thus allowed to become serious.

With regard to hemorrhoids, I use the clamp and cautery. Occasionally I have ligated a pile when there has been a possibility of hemorrhage, but I do not remember of having a case of hemorrhage

except a case of secondary hemorrhage, two or three weeks after the operation. I was away and did not see the patient when the hemorrhage came on and Dr. Bingham had the pleasure of looking after it.

I am surprised to hear Dr. Gile speak of pain from the clamp. It seems to me that the majority of cases are pretty comfortable after it. I have been surprised that they do not have more pain. Perhaps I have not attended as closely as he did and inquired as to how my patient felt.

DR. L. M. BINGHAM, Burlington.—I have enjoyed the paper very much. Whenever I find any evidence of toxemia, I look the patient over pretty thoroughly and being unable to find any cause for it, I never neglect to examine the rectum and have found rectal ulcers or fissures. An early operation has relieved the patient of all the symptoms.

Closed by Dr. D. C. Hawley.—I will take but a moment of your time in closing this discussion. I would like to say with regard to pain after the clamp and cautery operation, that I find the patient suffers much pain if the skin is burned and *vice versa*. Again in the operation by ligature, the same is true if the skin is cut. If you have neither cut nor burned the skin, you get little pain. In the majority of cases of internal hemorrhoids, it is not necessary to either cut or burn the skin. I must say I was a little surprised at what Dr. Gile said. Many patients tell me they had not been so comfortable for weeks or months. With regard to the cauterizing, I think you should not cut too much of the tissue away but burn it down, making an eschar of considerable size; crush the base of the tumor and burn it down thoroughly. I feel that hemorrhage is not very apt to occur. I use white heat. When I was trying to learn to do some of these things under Dr. Bingham, he said use the cautery at red heat but I find I like it better at a white heat. Dr. Gile spoke of the operation by excision. It is not used very much in this country and I did not take up that subject from lack of time. If you have a tubercular fistula in a tubercular patient you probably get but little benefit from operation, but if you have a non-tubercular fistula in a tubercular patient, in the majority of cases you may expect a cure. With reference to the necessity of a thorough examination I would say it is one of the points of utmost importance. I recall a case of a man suffering from cancer within the rectum. He was growing thin and had bloody stools constantly. Never had employed a doctor; never had had an examination made. He finally consulted a physician and this physician asked me to go in consultation. It was found the man had a large cancerous growth inside the rectum. He died within two or three months. If he had sought relief at the onset, something might have been done for him, or perhaps his life saved for many years.

DISPENSING physicians have more than once been the object of legislative attack, but the universal decision has always been that the right to furnish medicines to his patients is inherent in the physician and that it is not probable that the legislature would deprive him of it or that the court would sustain any such an attempt if made.—*McKee, Lancet-Clinic.*

ALCOHOL, CHLOROFORM AND ETHER.—Rubin, experimenting with alcohol, chloroform and ether, in the laboratory of Rush Medical College, found that each of these agents prevented the leucocytosis following the injection of cultures; and that the animals to whom either of these three drugs were given died, in every case, while the control animal survived. He also found that these drugs lessened the ability of the leucocytes to take up the germs which they met in the blood.

PICROTOXIN.—In *The Lancet* for Sept. 14, Peter Patterson says that picrotoxin is a preventive of post-chloroform sickness. He administers the picrotoxin as soon as possible after the anesthetic has been withdrawn. He administers about 20 minims of a 2-10 per cent solution in sterilized water, hypodermatically, as soon as possible after the withdrawal of the anesthetic, and at the very latest before the patient leaves the table. This would be about 1-25 grain, which seems like a rather large dose.

READY MADE MIXTURES.—In an address before the Philadelphia County Medical Society, H. C. Wood, Jr., protested against the use of all ready-made mixtures, as hampering seriously the advance of rational medicine. "The symptoms of disease being different in every two individuals, the rational treatment must be modified according to the individual case. He who uses a routine cough syrup is as far astray as he who has a sure cure for pneumonia or typhoid fever." To which, we heartily say Amen.

HIGH PRICES OF FOODS.—The first real tangible effect of the operation of the Pure Food and Drug Law on the retail druggists is that it has brought about general and striking advances in the prices of almost everything that admits of adulteration. This clearly demonstrates one of two things and possibly both; this, that in the past we have been outrageously deceived in the quality of the goods purchased, or else the first hand and the middle man have improved an excellent opportunity to increase their earnings.—President Mann, N. A. R. D.



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THERAPEUTIC NOTES.

"The practitioner should know something of pharmacy and its application to medicine as practiced. He should know, for instance, that there is a natural salicylate of sodium, and an artificial one; and that the natural one costs about \$6.00 a pound, and the other about 50 cents, and that his patient will not get the six dollar variety unless he sees to it personally."—*Medical Sentinel*, October, 1907.

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RHEUMATIC SORE THROAT exhibits no exudate and no pus formation, but the membrane is a decided red, often rather dark, and is markedly aggravated by weather conditions that increase rheumatic symptoms. Local treatments and even the usually successful internal medicines for ordinary sore throat are inefficient. Tongaline or Tongaline and Lithia Tablets, by rapidly expelling the poisons which are the source of the complaint, will secure the most beneficial results.

ANEMIA.—The consensus of modern scientific opinion is that anemia is but a phase of malnutrition. Blood poverty is merely incidental—iron can never fulfill all the requirements for treatment. Moreover, there is more than sufficient iron in an ordinary daily diet to overcome the worst form of anemia known—if it could be assimilated. Dujardin Beaumetz proved this fact and struck the keynote of the successful treatment of impoverished blood, i. e., promote assimilation of food, and not only the blood poverty, but malnutrition in general will be overcome. This is the rational and scientific reason for the universally acknowledged value of Gray's Glycerine Tonic Comp. in all forms of anemia. Comparative clinical tests have proven—time and time again—that Gray's Glycerine Tonic Comp. will cure many of the most rebellious cases of anemia, even those that have resisted treatment by practically every known form of organic and inorganic iron.

APPENDICITIS, HERNIA AND AMPUTATION.—Case 1. Strong, young man, appendicitis. Tried faithfully for two and a half hours to anesthetize him with chloroform and ether and failed. Two days later I gave him one H. M. C. tablet, hypodermically, one and one-half hours before operation, and one-half a tablet fifteen minutes before putting him on the

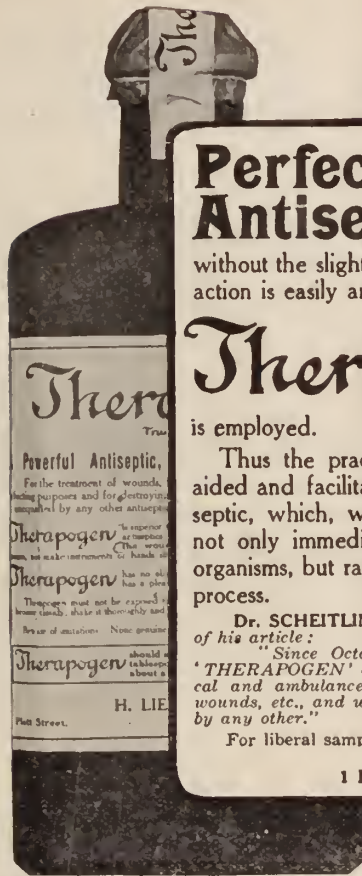
table. Opened the peritoneum, when the patient aroused and screamed. As soon as he quieted I had a few whiffs of chloroform given, which he took beautifully, requiring only thirty drops to complete a most successful operation.

Case 2. Woman, aged 50, very frail, femoral hernia strangulated five days. With one tablet, an hour previous to the operation, I was able to complete the radical operation, resecting six inches of gut. This patient took one-half dram of chloroform during the operation, was on the table one hour, and came off very much less shocked and in by far better condition than when she went on the table.

Case 3. Amputation of both feet of a boy, for frost bite. Used one tablet and a very small quantity of chloroform. I could mention several other cases, some in the obstetric line, which were equally satisfactory, but it is useless. I consider the compound the greatest help to the surgeon's work yet known. To-morrow I am going to do a thigh amputation with it in a boy thirteen years old, for tubercular knee of months' standing. He is so weak and thin that he could not possibly stand chloroform or ether. —Humphrey Silverton Belt, South Boston, Va.

RHEUMATISM.—If the *diplococcus rheumaticus* is the exciting cause of rheumatism, we know also, since the few only are affected, that the germ alone is not all-sufficient. There must be, as well, a condition of the system favorable to the multiplication of the germ. This means predisposition. Since we can not escape bacterial contact the treatment of rheumatism means what can be done to overcome the predisposing cause. The toxemia of faulty metabolism is the one great contributory factor. The treatment of toxemia is by elimination. Alkalithia is the ideal eliminant and will be found the ideal treatment for rheumatism.

ANEMIA AND ITS RELATION TO CATARRHAL INFLAMMATION.—No disease is more common than chronic inflammation of the mucous membranes. Doubtless many causes contribute to the prevalence of this malady which spares neither the young nor the old, the rich nor the poor, the high nor the low. Prominent in its etiology, however, are sudden climatic changes, the breathing of bad or dust laden air, bad hygiene in personal habits, and bad sanitary surroundings. These factors all singly or collectively tend to lower the vitality of the whole human organism, and as a consequence the cells throughout the body perform their various functions imperfectly,



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or not at all. The quantity of the blood becomes very much lowered, with the result that tissues that have important work to perform, do not receive sufficient nourishment and so falter from actual incapacity. The red blood cells are reduced in numbers and the hemoglobin is likewise diminished. Because of the blood poverty the digestive process is arrested, nutritive material is neither digested nor absorbed, and a general state of inanition ensues. It is not surprising under these circumstances, therefore, that chronic inflammation of the mucous membranes is produced. These highly organized structures with very important duties to perform naturally suffer from insufficient nutritional support, and the phenomena of catarrh follow as a logical result. Perversion and degeneration of the cells in turn takes place, and more or less permanent changes are produced in the identity and function of the tissues. Appropriate treatment should consist primarily in correcting or eliminating all contributing factors of a bad hygienic or unsanitary character. The individual should be placed under the most favorable conditions possible and every effort made to readjust the personal regime. Local conditions of the nose, throat, the vagina, or any other part, should be made as nearly normal as possible by suitable local applications or necessary operative procedures. Then attention should be directed immediately to improving the quality of the blood and thus increase the general vitality. For this purpose vigorous tonics and hematics are desirable and Pepto-Mangan (Gude) will be found especially useful. Through the agency of this eligible preparation, the blood is rapidly improved, the organs and tissues become properly nourished and accordingly resume their different

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ALCOHOL NOT NECESSARY.—In *The Medical Brief*, Prof. W. E. Dixon closed a rather laudatory article upon alcohol with the following significant words: "Alcohol is not a necessary article of diet for the healthy adult, and to the young it may do serious harm by creating a habit. That's enough."

CHLOROFORM DEATHS.—*The Dental Digest* for August speaks of two persons who died after chloroform had been administered for the extraction of teeth, and two others who died from the extraction of teeth without any anesthetic mentioned. People will still continue to have teeth extracted.

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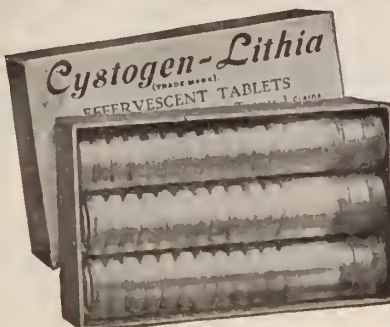
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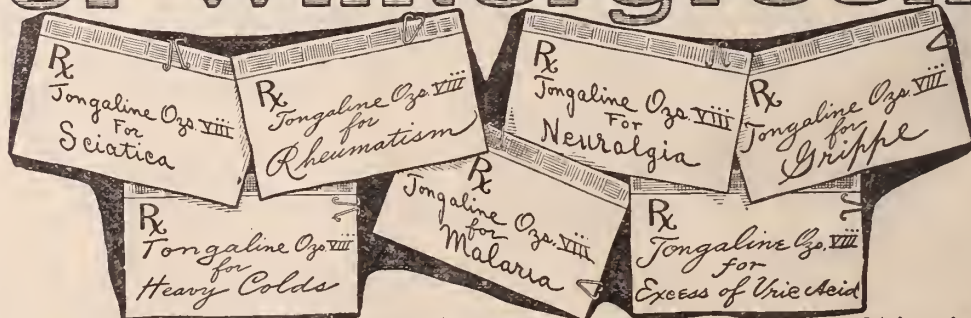
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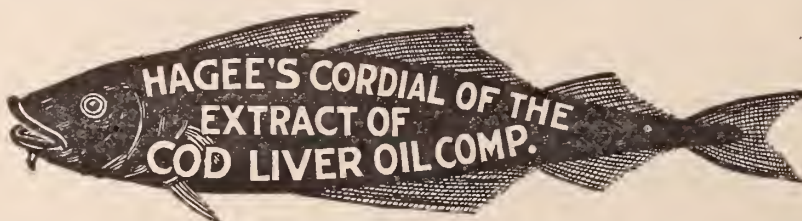
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Venereal and Genito-Urinary Diseases—Professors Eugene Fuller, M. D.; Ramon Guiteras, M. D.; Follen Cabot, M. D.; Adjunct Professors—James Pedersen, M. D.; Winfield Ayres, M. D.

Surgical Anatomy and Operative Surgery on the Cadaver—Professor John J. McGrath, M. D. Adjunct Professor—Denis A. McAuliffe, M. D.

Anatomy—Professor Nell Macphatter, M. D.

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ORIGINAL ARTICLES.

ADDRESS GIVEN AT THE OPENING OF THE UNIVERSITY OF VERMONT COL- LEGE OF MEDICINE, NOVEMBER 14, 1907.

*By Judge E. C. Mower, Secretary of the
Board of Trustees.*

THE PHYSICIAN AS CITIZEN.

Upon the ordinarily worthless editorial page of a recent Sunday newspaper appeared a picture illustrating "Opportunity—The House of a Thousand Doors." A youth is seated before the pillared entrances to the various walks in life—the professions, the sciences, commerce, and the like, pondering deeply the vexed question of a career. The cut truly illustrated in flamboyant and exaggerated fashion a man's awakening to a sense of the reality of life and of the responsibility placed upon him, of acting a man's part upon the world's great stage. I suppose the most interesting and vital moment in any man's life is that in which he is fully conscious of having decided once for all upon his career. Then for the first time he feels that he is on the track, which runs straight away before him; then for the first time he knows the supreme satisfaction of having an objective point in life toward which all his activities, his acquisitions, his ambitions, shall thereafter tend.

The man has been drifting, perhaps, before; he has not quite understood himself; the bent of his mind may have been so imperceptible that it might conceivably run in any one of many directions; he has been distrustful of the tests which he has endeavored to apply to his own capacities: he has painfully attempted to distinguish between the mere whims of his fancy, as it played about an imaginary career, and the estimates of his sober judgment upon his adaptability to this or that calling. As one watches to note whether the fleck of cloud in the West grows or vanishes, so he anxiously weighs from time to time his doubts and misgivings, to observe whether they are really

substantial or mere spectres, born of a lack of proper self-reliance.

So he fights it out with himself. It is no holiday matter, this of staking out the field within which shall be confined a man's chief intellectual activities thenceforward. It demands courage—a kind of severe, relentless introspection which, if he be quite honest with himself, may not always be entirely flattering or comfortable in its revelations. But the die must be cast, and thenceforward it becomes with him a question of justification by works.

Now I have alluded to this crisis, this parting of the ways, in the life of the right minded man because it ushers in a danger which besets his whole subsequent career. This danger I shall discuss with special reference to the study and practice of medicine, although the argument might have almost if not quite equal application to the other so-called learned professions.

Once embarked upon his studies the man fitting for medicine completely absorbs himself in them. Collateral reading is largely abandoned: the requirements for admission to practice are so exacting, the night-mare of failure to meet them, oftentimes reinforced by imperative financial considerations, so ever present that the man absolutely surrenders himself to one dominating ambition. Three or four years of this sort of thing profoundly affect the intellectual side of a man. His viewpoint has changed. Instead of surveying in leisurely fashion the broad field of knowledge, as it is the blessed privilege of the academic student to do, he has been passionately absorbing the minutiae of one small corner of that domain. His eye has been microscopic instead of telescopic. The emphasis has shifted from the general to the specific, and culture in his view too easily resolves itself into a mere background for the technical knowledge which has become his chiefest interest; in a word, he is now a specialist, with all the specialist's zeal for mastery, his instinctive exaggeration of the relative importance of the facts and principles with which he deals.

This I think fairly epitomizes the intellectual experience of the average man as a student along professional lines. Having fairly

mastered the book-lore of medical science and some practical matters necessarily to be understood at the outset, he enters upon his professional career. He then makes the discovery that not all of medicine is set down in any book; that outside the covers of his well-thumbed shelf of somebodies on this, that or the other thing lies a great unconquered realm of professional learning; that theory and practice are hardly speaking acquaintances, until introduced by actual experience, and that a good half outside of any mere book-knowledge, lies the secret of professional success.

This discovery both depresses and stimulates him. At first he feels doomed to remain in the professional kindergarten; at length come opportunities to transmute professional learning into professional wisdom; experience slowly ripens; fundamental principles become more and more easy of application, and finally the student becomes the practitioner.

But does he become the mere practitioner? That is the question to which I desire to invite your attention: and the danger to which I alluded a moment ago, is that he may.

Once fairly launched upon his professional career, he is dangerously apt to become a severe monotheist, worshipping at the shrine of the god success. To say nothing of the initial momentum gained in his years of strenuous preparation, professional pride alone masterfully tempts him to sacrifice any interest which stands in the way of professional advancement and distinction.

It has been said that the law is a severe mistress, and a great English judge once remarked that to master the law a man must live like a hermit and work like a horse. In the law, at any rate, mastery becomes increasingly difficult as time goes on; not only must there be an accurate comprehension of fundamental principles, but those principles must be applied in a spirit both conservative and progressive to the kaleidoscopic conditions of modern social and industrial life.

So in effect must it be with medicine. Ever new researches, new discoveries, new methods of treatment; the learning of today superseded by that of tomorrow; the boundaries of medical knowledge ever retreating before the onward march of skilled investigators, and ever new and seductive fields for experimentation opening up before the ambitious practitioner. Allied sciences lend increasing aid in the con-

test with disease; the practitioner must surround himself with new and heretofore unknown apparatus and understand its application to the treatment of human ills. In a word, medicine is not blood-letting and pill-compounding, but a complex science, demanding more and more skill and learning on the part of its devotee. He cannot be one of Lord Bacon's "empyric physicians who commonly have a few pleasing receipts, whereupon they are confident and adventurous, but know neither the causes of disease, nor the constitutions of patients, nor peril of accident, nor the true method of cures."

He probably belongs to one or more medical societies, county, state, national, and for aught I know, international. He feels called upon to contribute from time to time to the literature of his profession, the labors of mere authorship being more or less augmented by experimentation and accurate, painstaking observation.

All these things make good physicians; but bear in mind the point of this discussion: Do they not also tend to make mere physicians?

It is true that the modern tendency towards higher standards of preliminary education, whereby the foundations of professional training are laid deeper and broader than formerly, is directly in the line of fostering the symmetrical development of professional men. But this cannot be relied upon as an ultimate solution of the difficulty, for, as pointed out by the Dean of this school in a recent editorial, there is a limit beyond which it is questionable policy to go in the matter of educational requirements for entrance to professional schools, and without doubt that limit falls considerably short of such a general education as insures against the danger under discussion.

But the increasing difficulty of achieving and maintaining good professional standing is not all. Life itself grows daily more and more complex—so many things to do and so little time in which to do them. The modern man has so many demands upon his time and energies, outside of his business or profession, that it has become a serious question with him just where to draw the line, for it must be drawn somewhere. Serious studies; consecutive, systematic reading, such as alone accomplishes anything really worth while; independent investigation of public questions which may enable us to have opinions not accepted on the

faith and credit of editors and magazine writers—where in Heaven's name can these things come in amid the multitudinous concerns of business and social life besetting us on every hand?

Not long ago the librarian of our public library told me of a business man who confessed to her, that although he had passed the building several times a day ever since its erection, he never had seen the inside of it. The fact does not necessarily argue in him indifference to the intellectual life; it more probably indicates that he has unconsciously allowed business and social activities to dominate him absolutely, to the inevitable exclusion of those things which the library stands for. We have no leisure, if by that we mean breathing spells between our regular intervals of work, in which to take our time in the pursuit of intellectual refreshment. Our very vacations are too apt to be but feverish attempts to escape the avalanche of routine demands upon our time and energies. Higginson aptly refers to one aspect of this social phenomenon as "overclubbability," by which term he characterizes the modern vogue of secret societies. "Your neighbor unhappily dies some day," said he. "You had supposed him a placid and domestic man known only to his own family and his fellow clerks, but his obituary suddenly blossoms with mysterious initial letters and numbers, and his doors on the day of the funeral are thronged with delegations; he was, it seems a Knight Templar and a member of some Royal Arch Chapter; he had taken the thirty-third degree of something; he belonged to Amity Lodge, I. O. O. F. and to the Mayflower Council of the Home Circle. Meanwhile there is printed in a parallel column the notice of some other recent death, and it is apologetically stated that the man belonged to no organization, but was much respected for his qualities as a business man and a citizen. There is great expressiveness in that 'but'; it requires some explanation, it seems, if a man has ventured to die without an initiation, solemn or otherwise, into some secret order."

There is still another aspect of modern life, touching the matter under consideration and quite as serious as that just alluded to, being in fact largely the effect of it. It falls out naturally that in the midst of our amazing multiplicity of interests, we spend much more money than did our forefathers to attain the

same relative social standing and degree of comfort. Probably the average student's undergraduate course is considerably more expensive than it used to be because of the growing complexity of college life itself. Certainly when we emerge into practical life we are forced to adopt standards of living quite beyond those of old. We must live in better houses, sit at better tables and maintain wardrobes more varied and expensive; the adjuncts of ordinary living like the telephone and the automobile, multiply daily and tax increasingly not only our purses but our vocabularies.

"I suppose that life was never fuller in certain ways than it is here in America," said Warner in his address on "What is Your Culture to Me?" "If a civilization is judged by its wants we are certainly highly civilized. We cannot get land enough, nor clothes enough, nor houses enough. A Bedouin tribe would fare sumptuously on what an American family consumes and wastes. The revenue required for the wardrobe of one woman of fashion would suffice to convert the inhabitants of I know not how many square miles in Africa. It absorbs the income of a province to bring up a baby. We riot in prodigality, we vie with each other in material accumulation and expense."

Now it follows that the professional man must enjoy a larger income than used to suffice for him, and while it is not true, probably, that he must do a correspondingly greater amount of work, it certainly is true in law, and I venture to say measurably true in medicine, that compensations for given professional services have not increased in proportion to the increased cost of living; so that the professional man must do more work to keep his income up to the prevailing standard of living. It is the price we pay for what we are sometimes tempted to call the superfluities of modern life.

Such are some of the conditions under which professional work must be done at the present time: that they are an unmixed evil is not asserted; but that they have a tendency to dike in, so to speak, the current of a professional man's intellectual activities, to withdraw him from close and sympathetic contact with the broad movements of contemporary life, cannot be denied. I hold it to be his duty, first, last and always, to set his face absolutely against a surrender to these conditions. All incentive to a whole-souled devotion to one's chosen pro-

fession, the challenge of professional ambition to the very best of which we are capable, a proper sense of one's strictly professional responsibilities,—these things are well and good, but let us never forget that we are citizens as well as professional men, neighbors as well as doctors and lawyers, voters as well as specialists. We cannot fairly claim exemption from the performance of the educated man's full duty to the community in which he lives. The insistence of professional demands is no excuse for shirking that full share of civic responsibility which must be assumed by the men to whom society has given the inestimable privilege of collegiate and professional training, if our political and social life is to be clean and wholesome and of good promise. Surely the state is vitally interested in commanding the services of the most skillful and devoted medical men it is possible to produce, but in defraying fully half the expense of your medical training, and in throwing open the way to the required preliminary education, she does not for a moment lose sight of the claim she has upon you as members of the body politic. The community with which you medical students identify yourselves in the practice of your profession, will have crying need not only of your medicine but of your citizenship. There never was a time when civic leadership was more imperatively demanded than today all over the land. Not medicine alone is being revolutionized in these latter days; everything is in a state of transition and experimentation. Social evils are loudly demanding a remedy, and the call is heard by a multitude of self-constituted healers—the spelling indicates my meaning—whose nostrums are themselves alarming symptoms of deeply seated and widely prevalent political disease. Novel theories of government are in the air; constitutional questions as important as any that have ever engaged the attention of the American people are under discussion, questions that go to the very heart of our national life, and there is no escaping the insistence of their demand for a final answer. Social and political conditions give cause for apprehension, which can only be allayed by an abiding faith in the loyalty of those upon whom is placed the responsibility of leadership.

Life today is a challenge to good citizenship. No man can be a man among men, who cloisters himself, who lives for professional

success alone. Certainly no citizen has greater opportunity to be a missionary in the spread of sound political and social ideas among the people than the physician. The confidential relation between physician and patient is an open door through which to reach the well-springs of thought and action. The influence in any community of one upright, public spirited physician, a man of true, if not wide culture, a man whose attitude towards the higher things of life, even though it be not ostentatiously displayed, is nevertheless consistently right, a man whose civic conduct is diffused and tempered with real patriotism,—is beyond all calculation. Perhaps the time is past for the full realization of the beautiful ideal relation of the physician to his community, such as literature has made so much of, but certainly here and now can be done by you the duty of civic loyalty which every educated man owes to his day and generation.

So I would say, more specifically, to young men preparing for professional careers as well as to those who have entered upon them, do not allow yourselves to be swallowed up by your profession; do not limit your intellectual interests and pursuits to the literature of your profession; do not make it possible for any man to say of you as you come down to the close of your professional careers, even though you may have earned as many insignia of professional honor as Lowell appended to the name of the immortal Homer Wilbur, "He was a mere physician."

Who knows so well as the physician the common life of our communities, the thoughts, the aspirations, the needs, the temptations and the weaknesses of the plain people? Who so well as he understands the practical operation of those laws intended to suppress crime and foster intellectual advance? Who more fully appreciates the vices of the machinery provided for the expression of the will of the people? Such a man may guide legislation intelligently, and effectively lend aid in the enforcement of those laws touching every-day life, and in behalf of the brotherhood whose hands are set to the difficult task of administering the laws of the land, I invite the co-operation of the great army of physicians in that work, to the end that law,—all law and the law for all men, may be but another name for justice.

I would dedicate this college not only to the beneficent science for which it primarily

stands, but to the upbuilding of those things without which all sciences are ultimately vain, —patriotism sober and reasonable, respect for law as such, a public opinion which investigates and discriminates before it decides, and finally, as the fundamental civic necessity, ideals of culture which shall embrace not only one science but all sciences, and not science alone, but life in all its vast potentiality.

DIPHTHERIA AND ITS TREATMENT.

By J. A. E. Lanouette, M. D., Manchester, N. H.

Mr. President and Members of the Manchester Medical Society:

Your committee in charge of the program for this meeting persuaded me to prepare a paper upon some subject which would be of interest to the members of the society; and while the subject which I have selected will not be new to any of us, I believe we may profitably spent a few minutes in the consideration of a disease very prevalent among the people and very fatal in its results if not treated with intelligence and skill. I refer to Diphtheria. Synonyms:—Membranous Croup; Angina Malignum; Putrid Sore Throat.

Diphtheria may be defined as an acute infectious disease, characterized by inflammation and formation of a false membrane in the upper air passages, particularly in the pharynx. The specific cause is an infection of the Klebs-Loeffler bacillus.

Diphtheria has been known since the time of Galen, but its specific nature was not recognized until the discovery of the bacillus Diphtheriæ. The disease occurs chiefly in children, and is comparatively rare after the 16th year of life, though no age seems to be exempt.

Persons affected with nasal or pharyngeal catarrh, adenoids or enlarged tonsils, or those who do not properly care for their teeth, are predisposed to the disease. It is more prevalent in winter. Bad drainage and sewer gas have never been proven to have any direct influence upon the incidence of the disease; but where they exist in the presence of this disease they are likely to depreciate the

general health and lessen the powers of resistance; but they are not causative.

The specific cause of Diphtheria is the Klebs-Loeffler bacillus, a nonmotile, short, slightly bent bacterium with rounded ends.

It may be found in the false membranes and exudate of the diseased tissues, and in its growth produces a poisonous substance of toxic nature, which is responsible for the constitutional symptoms.

With this bacillus other bacilli, or microorganisms, may be associated, and thus complicate the disease.

The Bacillus Diphtheriæ may be found in the mouths and throats of healthy persons in whom it causes no symptoms, due either to a lack of virulence on the part of the bacilli or a natural immunity or sufficient power of resistance on the part of the individual to render them inert.

The contagion is transmitted upon the air, or by means of ingested substances containing the bacilli. The disease is markedly contagious for a distance of a few feet, but its contagion is not very diffusible; consequently it is quite possible to confine it to a single room.

The contagion naturally is resistant and of considerable viability, and may remain actively upon the clothing, etc., for several months.

It has been believed that Diphtheria might be conveyed to man by cats, calves and fowl, which were infected by a disease of identical causation; but it has been proven that the diphtheria of these animals is a different affection, and is not communicable to human beings.

The characteristic pseudo-membranes of Diphtheria may be found in various situations. Of these the throat, including the tonsils, pharynx and larynx, including the epiglottis, are most frequently affected. The membrane commonly occurs on the nasal mucous membrane, in the trachea, and in the bronchi. Less frequent situations are the œsophagus, stomach, duodenum, vagina, vulva, the ear, and the conjunctiva.

The membrane is first yellowish-white, and later becomes grayish. Early in the disease it is firmly attached to the parts beneath, and when detached, leaves abrasions. Later it is softer and more easily moved.

In extreme cases the mucosa beneath may be gangrenous. The adjacent lymph glands are enlarged, and the salivary glands may be

*Read before the Manchester Medical Society, Manchester, N. H., Nov. 8, 1907.

swollen. The diphtheritic membrane is the result of a degeneration necrosis of the mucous membrane. The epithelial cells are infiltrated with fibrin and leucocytes, necrose, and then undergo a hyaline transformation and coagulation. In short, it is a coagulation necrosis. Symptoms: The incubation's period is usually 2 or 3 days; onset is marked by chills, or in children a convulsion, followed by a rise of temperature. There are headache, bodily pains, nausea, vomiting, and prostration; but in the mild type of the disease, these symptoms may be slight or wanting entirely.

The constitutional symptoms in mild cases are not marked. In more severe instances, three or four days after the onset, the patient's condition becomes one of great weakness; the heart action is feeble, and cerebral symptoms are present. At this time there is great danger of death from paralysis of the heart. In other cases the constitutional symptoms are present from the beginning, the temperature is high, and the evidence of toxæmia pronounced. As a rule, the constitutional symptoms are in direct proportion to the local involvement. I will pass over all of the sequelæ and complications, owing to the lack of time in a paper of this sort, with the exception of the heart and paralysis.

The heart is often irregular and systolic murmur is heard at the apex in a large majority of cases. Pericarditis and endocarditis are rare. Heart weakness, evidenced by rapid and galloping rhythm and by sudden diminution in the pulse rate, is a serious manifestation. The cardiac symptoms usually appear from the 10th to the 20th day of the disease, but fatal acute dilatation may occur in convalescence even as late as the 7th week.

Paralysis is a most important sequel, and is a result of a neuritis due to the toxins of the disease. It may appear as early as the 7th day or not until convalescence, but as frequently follows mild as severe cases. It occurs in from 10 to 20% of the cases, and is more frequent in adults than in children. The palate is most often affected, and is evidenced by a nasal voice in speech and by the regurgitation of food through the nostrils. The pharynx is anesthetic. Involvement of the muscles of deglutition is not infrequent, and various ocular palsies are not rare. Neuritis of the extremities may occur, resulting in permanent disability. Recovery from

these paralyses usually takes place, within a few weeks. A multiple neuritis may ensue, which, if it involves the enervation of the heart and respiratory organs, the condition of the patient is very dangerous.

The diagnosis can only be assured by bacteriological examinations, fortunately not a difficult procedure, especially where the health department affords such facilities for laboratory diagnosis as they do now all over the country.

Prognosis since the introduction of the antitoxin treatment has been rendered vastly more favorable than previously, especially when the injection of the serum is administered at an early period of the disease. Here are a few statistics which will show the importance of acting early.

REPORT OF BROOK HOSPITAL, OF LONDON.											
204 cases treated		1st day.		Mortality,		Admitted.		Died		Per Cent.	
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1278	"	"	"	"	"	"	43	220	153	114	0.0
1374	"	"	"	"	"	"	153	114	61	121	4.09
1086	"	"	"	"	"	"	61	121	77	1081	13.72
1382	"	"	"	"	"	"	77	1081	460	355	17.54
MUNICIPAL HOSPITAL REPORT, 1904, PHILADELPHIA.											
Day of Disease.		Admitted.		Died		Per Cent.		Total			
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
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REPORT OF DR. HERBERT D. PEASE, DIRECTOR OF ANTITOXIN LABORATORY, NEW YORK STATE DEPARTMENT OF HEALTH.											
Day of Disease and of First Injection.		Admitted.		Died		Per Cent.		Total			
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1374	"	"	"	"	"	"	153	114	61	121	4.09
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germs at work; hence a greater quantity ought to be administered. The location of the lesion has something to do with the dosage. The posterior nares, the superior pharynx, and uvula are underlaid with a network of lymphatics; in these portions a larger proportion of toxin is thrown into the lymphatics,—more than in other situations.

When exudate is present in the larynx or trachea we can only judge the extent of involvement by the stenosis. When several sites are involved, very large doses are indicated. Large doses cannot do any harm. 30,000, 50,000, 60,000, and more units have been given.

Immunizing: In general 1,000 units injected is sufficient to immunize the patient for three weeks when exposed to the disease.

WHEN AND HOW TO INJECT THE SERUM.

The serum should be injected into such tissues as will enable it to be absorbed into the blood circulation as rapidly as possible. Antitoxin injected into the lower layers of the skin causes excessive pain and subsequent local disturbances. That forced into inter-muscular spaces and into adipose tissue will doubtless be absorbed in time if the patient lives long enough.

Biernacki and Muir used the intravenous method in 45 cases of diphtheria; and while they obtained good results in these cases, considering their severity, they hesitate to say that in any individual case the result was better than the subcutaneous method would have given. However, they resorted to general anesthesia in two of their cases, and apparently neglected to properly warm the serum in others, which might account in part for their results.

Cairns used intravenous injections in single doses up to 50,000 units in twenty of the most severe cases in a consecutive series of fifty without resorting to general anesthesia. In seventeen of the twenty, tracheotomy was required; and of these but one died. He claims that all of those receiving intravenous doses did remarkably well, and that the skin and other disturbances due to the horse serum were no worse than with the subcutaneous injections. Suber also speaks well of intravenous injections, stating that they are harmless.

However, Meltzer and Auer have recently shown that the absorption of substances injected directly into the muscles is incomparably

more rapid than that of those injected into subcutaneous tissues, and was almost equal to direct intravenous injection. It would seem, therefore, as if the use of the intravenous method were hardly necessary in any but the most desperate cases, and the general adoption of injections of antitoxin directly into the muscles should be strongly advocated.

Treatment: Isolation, ventilation, kept in bed to avoid failure of the heart.

All patients in whom the clinical symptoms resemble those of diphtheria should receive antitoxin without waiting 24 hours or more to learn the result of the bacterial examination. Better to give antitoxin to a patient who doesn't need it than to allow one patient suffering from the disease to wait even a few hours.

And now a few words as to the kind of antitoxin to be employed in the treatment of this dread disease. In my own practice I am particular about the concentration of the product as in the process employed by Gibson. I believe that many of the by-products of the serum which produce rashes and other by-symptoms are eliminated, not to say anything about the discomfort to the patient from having a large quantity of superfluous serum injected under his skin.

I have been somewhat interested to learn of the choice of the local physicians as to the "brand" preferred by them, and during the past year-and-a-half the Board of Health has had calls for the Lederle preparation in nearly three-fourths of the cases.

VERMONT AND ITS RECIPROCAL RELATIONS.

No excuse can be offered by the Vermont State Board of Medical Registration for not previously giving more publicity to its work in establishing reciprocal relations with other states except the imperfect conditions prevailing and consequent difficulty in giving accurate information. It is due the profession however, that some facts should be known and we have deemed it the better way to give them through the Vermont Medical Monthly than to wait for inquiry and the consequent lengthy correspondence which must necessarily follow.

Soon after the organization of the board under the present law an effort was made to

establish such relations with different states but owing to the imperfections which are often noted in the laws as primarily framed, many conditions demanded could not be met, and certain rules adopted by the board not being statutory would not be recognized. However, within two years after the board was established agreements were entered into, on the basis of equal requirements and other conditions as set forth in Art. 14 of our law, with the states of Maine, Maryland, Michigan, New Jersey, Wisconsin, Wyoming, Illinois, Indiana, North Dakota and the District of Columbia in special cases. We also had an agreement with Ohio and Texas. Owing to the unsatisfactory law in the latter state, it was subsequently repealed and all agreements repudiated, but negotiations are now pending with a new board in the state under a better law, with indications of success. Like every progressive organization which aims to maintain a high standard, many imperfections in our law and regulations were found and our requirements were being questioned, and justly so by other states.

Certain amendments considered necessary were made at the legislative session of 1906, which enabled us to stand on a better foundation, but we have since discovered that we lack others before we can be considered on a par with states whose experiences have taught them the necessity of having all authority statutory.

Previous to 1906 Vermont has not had an authoritative high school standard, consequently outside of its borders the secondary schools had no rating and we have been unable to fulfill the requirements demanding a satisfactory standard, as each school had its own.

Under such circumstances, with a state like New Jersey and an ideal registration law we were unable to continue reciprocal relationship, nor could we establish one with the state of New York unless provision was made for a more perfect standard as regards preliminary educational requirements.

This is the fundamental factor which enters into the requirements for endorsement in states considered the most careful, and the most essential element in the fitness of the medical licentiate for the practice of his profession. At the meeting of the council on Medical Education of the American Medical Association in Chicago last spring it was *the*

subject of discussion as one bearing the closest relationship to the proper qualification of a medical student and the profession he aspires to.

We desire to acquaint the would-be medical emigrant with the conditions which must be met before he can go hence or come hither, and we believe the conservative physician will not question the justice of such requirements.

1st. One must be a graduate of a reputable medical college, and a reputable practitioner in good standing. 2nd. He must present credentials from the State Board of Medical Examiners showing a certificate of graduation from a high school of the first grade or its equivalent. 3rd. He must submit evidence of good moral character attested by two regular¹- licensed practitioners. 4th. One must be properly identified. 5th. The requirements of the respective states must be equal. 6th. No certificate can be indorsed on an indorsed certificate,—only on one obtained by examination.

Certain provisions are made for graduates prior to 1894 and who have been in continuous and reputable practice since graduation, also for practitioners prior to July 4th, 1903, who have been in continual and reputable practice for at least five years.

In this state an arrangement has been entered into by which the superintendent of education will pass upon the high school credentials of an applicant for reciprocity, which arrangement we hope may be continued by legislation in the near future. This requirement also prevails in most other states with which we are in correspondence. We are pleased to give notice that we have recently arranged to exchange certificates on the basis above noted with the states of New York, Ohio, New Hampshire and a new agreement has been drawn up with the Board of Examiners in New Jersey.

It is the purpose of our board to assist all who apply to us for endorsement certificates, but we cannot change a jot or tittle of the agreements which we have pledged ourselves to maintain, or deviate in any particular from the forms required. The secretary will be pleased to answer inquiries from anyone who may desire further information. Faulty requirements forbid our entertaining any proposition from states which have signified their desire to unite with us, while there is a pos-

sibility that some already on our list may be dropped unless some conditions are bettered in the near future. Our board has no desire to be or appear exclusive, but we do aim to be on a level with those whose ideal is higher attainments in the medical profession. By remitting thirty cents to the American Medical Association, Chicago, Illinois, one can obtain the little book containing the abstract of laws and detailed information respecting legal restrictions of medical practice in the several states and territories.

W. SCOTT NAY, M. D.
Secretary.

PUERPERAL SEPSIS.*

By J. C. Breittling, M. D., Lunenburg, Vt.

The discoveries of Louis Pasteur and their application by Lister in the year 1870 made possible the wonderful achievements of modern medicine and surgery. Prior to this time lying-in hospitals had come to be regarded as charnel houses. Semmelweiss who antedated Lister in the application of antiseptics in 1847 reduced the mortality from puerperal infection in the clinics of Vienna. Through him the compulsory washing of the hands in a watery solution of chloride of lime after thorough washing with soap and water prior to the examination of any pregnant or puerperal woman, was begun in the lying-in department of the Vienna General Hospital.

In our own country Dr. O. W. Holmes in '43 gave to the world his classic essay on the contagious nature of puerperal fever.

To-day throughout the civilized world the mortality from puerperal infection in lying-in hospitals is as low as 5 per cent. and in many of the best managed hospitals it has been practically eliminated. What more startling statement then could be made than that to-day in spite of our present knowledge of bacteriology, the mortality from puerperal sepsis has been little if any diminished.

What is the reason for this state of affairs?

Norris tabulates three causes:

1st. The carelessness and ignorance of the midwife.

2nd. The uncleanness of the rank and file of the profession.

3rd. The fact that the earliest symptoms of infection are disregarded and are not promptly treated.

In our large cities it has been said 50% of women in labor have been attended by midwives. The modern midwife with her little knowledge is far more to be feared than her sister of fifty years ago who was content to trust more to nature. The micro-organisms causing puerperal infection are of various kinds. The streptococcus is the most common and most fatal germ detected. Widal noted many lesions due to this germ, viz.: vaginal ulcers, endometritis, parametritis, peritonitis, pyaemia, and crural phlebitis.

According to other authorities 80% of the fatal cases from sepsis are due to streptococcus infection. The staphylococcus has been isolated in pure culture but more often is associated with the streptococcus as a mixed infection.

The proximity of the vulvar orifice to the perineum, rectum and anus renders easy the entrance of the colon bacillus. This germ may be and probably is a factor in mixed infections.

A large percentage of pregnant women have gonorrhea. Leopold, Noeggerath and others have estimated that from 18 to 30% are so afflicted.

The gonococcus is well known to attack mucous surfaces chiefly and seldom if ever invades the submucosa. Under the favorable conditions for germ growth present in the puerperal state this germ may actively attack the mucous surfaces of the vagina and cervix thus rendering the field more suitable for the entrance of other pyogenic bacteria.

General infection however may occur from the gonococcus alone. I have seen one case of severe gonorrheal rheumatism following delivery. The patient had a latent gonorrhea prior to her confinement. The baby developed ophthalmia in spite of a 2% silver application and there followed on the part of the woman tedious and anxious puerperium of four or five weeks complicated by peritonitis and gonorrheal arthritis of the carpal, metacarpal and phalangeal articulations.

Other germs such as the Klebs-Loeffler bacillus, bacillus typhosus, and pneumococcus have been found in the uterine lochia in cases of puerperal fever.

The normal secretions of healthy non-preg-

*Read at the Annual Meeting of the Vermont State Medical Society at St. Johnsbury, Oct. 11, 1907.

nant and pregnant uteri are by the majority of observers considered free from pathogenic organisms.

The secretions of the healthy vagina are likewise practically so considered. There is however a diversity of opinion regarding the subject.

Undoubtedly almost all cases of puerperal infection originate from without. The possibility of auto-infection must not however be lost sight of; a latent gonorrhea may prove to be a source of such auto-infection.

Induction of labor, manual dilatation of the cervix, instrument, a delivery by forceps, versions or the graver operations of Caesarean section, symphyseotomy, and craniotomy greatly increase the chances for infection.

Fibroid growths of the uterus being of low vitality are easily and successfully attacked by septic germs.

Injuries to the birth-canal such as lacerations of the cervix, vagina and perineum furnish favorable abodes for bacteria.

The retention of secundines placental fragments and blood clots gives ample culture-media.

The resistance of the patient may be greatly diminished by postpartum hemorrhage or the hemorrhage of placenta-previa whereby germs of low virulence successfully create a severe and even fatal infection.

Primary lesions are usually situated in the endometrium at the placental site and the infection conveyed either by way of the lymphatics, venous system or contiguous mucous membrane.

The consecutive lesions of parametritis, perimetritis, and peritonitis occur through lymphatic extension whenever the leucocyte barrier of the endometrium is unable to withstand the attacks of the streptococcus or other infecting organisms.

The parametrium of one or both sides may become the seat of hyperaemia and serious infiltration. Upon examination a mass at one side of the uterus may be felt. This exudate in the cellular tissue of the broad ligament may undergo resolution or terminate in suppuration. In either case more or less may remain as organized connective tissue. When suppuration occurs it should be evacuated by the posterior vaginal incision, when possible.

Peritonitis may result from rupture of the uterus, of a parametritic abscess and from

emigration of bacteria, principally the gonococcus from the tube into the peritoneal cavity. Unless the bacteria which come in contact with the peritoneum possess a high degree of virulence the inflammation remains circumscribed through the adhesion of the parietal and visceral peritoneum with resulting encapsulation of germs.

Ahlfield believes that the puerperium often rouses to activity a preexistent localized peritonitis especially in latent gonorrhea.

Where there is a rapid multiplication of germs over the entire peritoneal surface we get the more serious conditions of general peritonitis. I have thus imperfectly considered the extension of infection through the lymphatic system.

Venous infection progresses by involvement of the thrombosed venous sinuses of the uterus at the placental site. Softening of the clot takes place thus throwing the infectious material directly into the circulation.

Then follows the condition of pyaemia with consequent manifestations of localized phlebitis uterine, para-uterine or femoral, visceral infarcts of the kidney, spleen, liver, or lungs, septic endocarditis, arthritis, or remote abscesses.

TREATMENT.

Prophylaxis.—Rigid asepsis should be enforced both during labor and the puerperium. In normal healthy patients the vagina may be practically regarded sterile. But should any suspicion exist of antepartum infection the vagina should be thoroughly cleansed with green soap and sterile water followed by a $\frac{1}{2}$ or 1 per cent. lysol douche.

The preparation of the vulva is one of the most important items in prophylaxis. The same care should be used as in preparing the field for a surgical operation. The parts should be either shaved or the hair clipped short, carefully scrubbed with green soap and water followed by the free use of a bichloride solution.

The hands of the attendant should be surgically clean and over them drawn sterile rubber gloves. All towels, napkins, and dressings should be sterilized. How many, many times in general practice do we see this one rule violated.

During the post-partum state nothing but sterile napkins should be allowed near the

vulva. It seems almost superfluous to speak of this but after the most specific directions I have the next day after delivery observed them spread out on the back of a chair or elsewhere. "Oh but doctor they have been boiled" is the proud answer of the volunteer and untrained nurse. Not only must they be sterilized but kept sterile.

Subinvolution of the uterus frequently is responsible for the retention of possible culture-media. Therefore the uterus should be kept contracted and full doses of ergot given when indicated.

ACTIVE TREATMENT.

In the consideration of the active treatment of infection in the parturient canal Cragin has called attention to the two conditions which must be recognized.

1st. A toxemia due to the absorption of the products of putrefaction often called sapremia or the toxins of distinctively pathogenic bacteria.

2nd. A bacteriemia called also septicemia.

In the first condition we have a local infection to deal with. The same writer also believes the best rule to follow is to consider every case of infection a toxemia until evidence to the contrary is to be had.

The ulcerus should be carefully irrigated with either sterile water or salt solution keeping in mind not to injure the uterine wall nor the protecting barrier of leucocytes. If this intra-uterine douche brings away debris then exploration of the interior of the uterus is indicated. This is more properly done by the gloved finger and only in case of failure should the curette be made use of. Too often the use or the abuse of the curette lowers the vitality and protecting power of the uterine wall and is followed by a rise in temperature and perhaps a chill. The curette however in careful hands is of great assistance in the emptying of the uterus of its putrefactive contents.

In the use of the intra-uterine douche I wish to call attention to the danger of carrying infection from the vulva to the uterus. This can be obviated by introducing a speculum and using two douche nozzles, one to irrigate the vagina and the other to pass directly into the cervix without coming in contact with either vulva or vagina. After positive assurance of the uterus being empty further use of

the intra-uterine douche or curette is uncalled for and should be avoided. When we encounter a general infection—a septicemia—direct treatment of the interior of the uterus avails nothing. The treatment must necessarily be supportive and symptomatic.

Medication and food should be selected tending to maintain and increase the natural resisting forces of the patient.

The use of unguentum crede antistreptococcus serum and injections of collargolum fail to give the brilliant results hoped for.

Alcohol, strychnia and normal saline solution are valuable adjuncts when intelligently used.

Surgical treatment may include the posterior vaginal incision and drainage as recommended by Pryor or the ligation of thrombosed veins in the thrombo-phlebitic form of puerperal infection.

Hysterectomy can only be of value in cases in which the infection has largely localized itself in the uterine wall and unfortunately at such times is followed by a high mortality.

In conclusion it is obvious that our greatest duty lies in the prophylactic treatment of puerperal sepsis, safeguarding our parturient women through the valuable knowledge our modern bacteriology has made available.

LITERATURE.

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 Voorhees, Dorman, Cragin—*Am. Jour. Obs.*, Vol. 53, No. 6.
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DISCUSSION.

Prof. H. L. Burrell, Boston, Mass.—I have not had anything to do with obstetrics since 1887. I would say, however, that I believe thoroughly in the scrubbing brush. Let the operator use the scrubbing brush diligently on his own hands and I find this is more important than any antiseptic or germicide that can be used. I would not discard the rubber gloves, however. I have the moral conviction that if the scrubbing brush was used more diligently on the hands of the operator, there would be fewer cases of sepsis.

Dr. C. W. Strobell, Rutland.—It is of the greatest importance to avoid unnecessary digital examination. In my opinion one thorough aseptic digital examination should be sufficient (in the great majority of so-called normal cases) to determine the presentation—after which the labor can be permitted to proceed, without further digitation, until rupture of the amniotic sac; after which the progress and course of the presenting part can be determined, and influences, by palpation of the perineum, during pains. It is even quite feasible to determine the presentation by rectal touch, and in the same manner avoid, throughout the labor, any vaginal examination. Best of all I would recommend familiarizing

ourselves with external palpation, to make out the presentation, which avoids altogether vaginal or rectal examination. Puerperal infection is introduced from without, hence we must be careful not to act as carriers of infection. Preliminary sterilization of the external genitals, and of the hands, are prime safeguards.

As a rule we pay too little attention to the puerperal uterus. The labor over, and the usual two or three visits paid, provided no actual puerperal fever develops, we consider our duty fully discharged and pay no further attention to the progress of the uterus toward involution. This should not be so. If there is any time in the reproductive life of woman, when conservatism is needed, it is during the puerperium and the most important factor in that conservatism is, to secure adequate drainage. This may be done early by posture or pessaries; and later, upon the cessation of the lochia, by medicated lamb's wool tampons. Later still such radical measures as are indicated to restore the organ to its normal condition; thereby averting chronic pelvic disease, due purely to the accidents of the puerperium. We should study the conservative design of nature. As regards the so-called "lying in" period, I believe that nature never intended such a stage; the entire animal kingdom, with the exception of man, know nothing of such stages. A normal labor is a perfectly natural process, and I therefore believe that the perfectly healthy woman should follow natural laws and stay out of bed after the first day. Mind I said "perfectly healthy." Nature expects the upright position for drainage of the whole body and the physiological rest only at the usual and natural periods. Exercise promotes elimination; rest does not. Exercise preserves the tone of the body. Rest enervates.

Dr. M. R. Crain, Rutland—In Vienna they consider the danger so great that every case which has had a digital examination by a doctor or midwife before entering the hospital is put in a separate ward and treated as an infected case. The most important means of preventing infection is by scrubbing. Antiseptics have very little effect, but if the case has not been infected before the physician sees the patient, and the physician is scrubbed up and made surgically clean, there is little danger of infection. When you use douches you retard labor, as you wash away the secretions that nature intended to lubricate the parts. As far as gonorrheal infection is concerned, I would say that I have never seen a case of death from puerperal infection caused by gonococci.

Dr. E. R. Campbell, Bellows Falls—It seems to me this should be summed up in the word surgical cleanliness. I would add to what Prof. Burrell has said with regard to the scrubbing brush, that we should also use the nail knife. I believe Prof. Barker said that death often lurked beneath the finger nail in obstetric or surgical work.

Closed by Dr. J. C. Breitling, Lunenburg—The preparation of the hands is most important. They should be as carefully disinfected as though a major surgical operation was to be done. I believe in the use of sterile rubber gloves, but would never substitute them for surgically clean hands. Frequent vaginal examinations are to be avoided; one thorough careful vaginal examination should be sufficient. The period between the second and third stages of labor is an ideal time for the repair of lacerations. I do not believe in allowing the puerperal woman to get out of bed in three or four days. It takes a longer time for the uterus to become involuted and return to its normal size. The upright position may be

assumed by the woman in bed as early as her strength will allow, and the advantages of better drainage from the uterine canal thus obtained. There are always exceptions to every rule, but I believe a safe plan to follow in general practice is not to allow a woman to resume her household duties until two full weeks have elapsed following her confinement.

SOME DIFFICULT DIAGNOSES BETWEEN MEDICAL AND SURGICAL CONDITIONS.*

By J. M. Gile, M. D., Hanover, N. H.

The group of cases with which this paper will deal is a group purely and only on clinical grounds. There is no pathological or bacteriological reason for bringing them together. The discussion may sound somewhat like one of the writings on medicine of a century and a half ago, the title page of which would read somewhat like this, "A treatise on Chemistry, Physiology, and Anatomy together with a discussion of the Methods of Surgical Operations and some suggestions on the Fevers, also a Tabulation of the Common Medicinal Herbs and their uses."

The only excuse to be offered for the conglomerate is that there is a certain clinical similarity in all and my personal excuse is that they have given me a lot of trouble.

There may be a certain advantage, however, in bringing things that are clinically allied closer together. Our modern text books classify so strictly on lines of cause and pathology that you may have to go through a whole library to get at the facts concerning two conditions that clinically belong side by side.

At the present day the medical man deciding that the appendix is not worth saving, has practically given it over to the surgeon and the latter with his well known destructive tendencies has gladly assumed the responsibility; so appendicitis has come to be almost universally recognized as a surgical condition. Typhoid fever, on the other hand, aside from some important surgical complications remains for its treatment purely in the hands of medicine. But however unlike the causes, pathology, and treatment, the clinical symptoms may be so similar as to make the differential diagnosis most obscure; and the more unlike

*Read at the Annual Meeting of the Vermont State Medical Society at St. Johnsbury, Oct. 11, 1907.

the treatment the greater the necessity for an early diagnosis. As between two diseases for which we know only symptomatic treatment the exact diagnosis from the standpoint of the patient is nonessential. The treatment might be the same in either case. Before the days of antitoxin it made little difference whether we made diagnosis of tonsillitis or diphtheria, the treatment being identical, but as soon as a specific treatment was discovered for diphtheria a prompt diagnosis became of first importance. Just so since active surgical intervention has been applied to appendicitis, its differential from typhoid has become increasingly important. With the majority of cases there is no difficulty, the symptoms are classical and unmistakable, but with the exceptional case the error may easily be made either way, an appendix simulating typhoid or typhoid an appendix. In the former case the appendix usually hangs well down over the sacro-iliac junction into the pelvis, ruptures there, and is pretty well roofed over with adhesive exudate. The patient gets moderate and gradually increasing toxic symptoms, but is free from excessive pain and the usual local tenderness. In the typhoid case simulating an appendix there is rapid ulceration near the ileo-caecal valve, quick rise of temperature, local pain, and tenderness quite likely accompanied by vomiting. Split hairs as much as we will over the difference of the symptoms in the two conditions, in some cases we cannot make the differential by the clinical symptoms.

Twice I have operated for an appendix and found typhoid, and once I have let an appendix case go to the verge of the grave under diagnosis of typhoid.

We have for this differential, however, an almost certain diagnostic method in the blood examination and we can approach it from the side of either disease, since in an appendicitis of any severity we shall have a leucocytosis while in a typhoid we shall get the positive bacteriological test of Widal. For the latter the state and municipal laboratories are available with reasonable promptness. For the blood count it is much more satisfactory if someone can be equipped in each community who can be called upon to do the work. So important do I consider this means of diagnosis that it is the one practical point that I wish to urge in connection with this differential.

The second conditions which I would discuss briefly are typhoid and tubercular peritonitis. This tubercular condition seems in the majority of cases to be first diagnosed as typhoid. We are constantly having cases admitted to the hospital who give a history of having had an attack of typhoid from which they say they have not made a good recovery. They are complaining of abdominal symptoms and operation proves the condition tubercular. They are generally found with slight irregular fever, poor appetite and gradual emaciation, together with some tenderness and distention of the abdomen. On careful examination one area is found to be more tender than the rest of the abdomen though even here it is not often very acute. These areas of greater tenderness are usually in the lower abdomen, this naturally from the fact that the Fallopian tubes and the appendix are the mucous foci from which the disease in many cases originates. I have, however, found the pain and tenderness, and on operation the most extensive lesion on the under surface of the liver and the contiguous viscera.

This case was one to which I was myself a party in the diagnosis of typhoid. The patient, after a tedious course of the supposed typhoid, was better but had a continuance of the symptoms just referred to. Exploration revealed most extensive exudate and adhesions which the microscope proved to be tubercular. The most extensive process, as already stated, was just below the liver. This patient's blood had never given a positive typhoid reaction, his temperature had never quite reached normal nor his appetite returned. All this is entirely contrary to the usual course of a typhoid recovery and there is no probability that the case was anything but tubercular from the outset.

In another case a patient admitted to the hospital had a history of an irregular course of typhoid during which an abscess had finally formed and opened just below the umbilicus, this was supposed to have been due to the perforation of a typhoid ulcer. After this the patient got rapidly better. Her admission to the hospital a year later was on account of a bunch that was forming over the region of the appendix. Incision secured pus and showed its origin to be a perforation in the caecum. The caecum, in turn, being closely adherent to the anterior abdominal wall. A third or more

of the caecum was thickened and infiltrated and was removed with the appendix. Microscopic examination proved the tissue to be tubercular.

In another case of supposed typhoid with imperfect recovery the patient died within six months of what proved to be tubercular meningitis. In still another case under my own care I reluctantly relinquished a diagnosis of typhoid when after three weeks there was failure from repeated tests to get a positive Widal and from this time on the patient rapidly developed symptoms of general miliary tuberculosis and died with meningeal involvement after the appearance of gross lesions in the lungs with positive tubercular sputa.

I merely mention these as illustrative, and have operated on numbers of others who, as above stated, have come to the hospital with history of unrecovered typhoid and that proved, bacteriologically, on operation, to be tubercular.

Of course it cannot be said with positiveness that these cases were not primarily typhoid. But in the cases which have been under my observation from the first I am perfectly satisfied that my original diagnosis was wrong, and in regard to those that came to me later I suspect that my fellow practitioners had been no more fortunate in their early diagnosis than I had.

The fact appears to be that while the majority of cases of tubercular peritonitis have a slow onset and follow a chronic course there are others so fulminate in type as to prevent all the features of the acute disease, typhoid. In these, however, an arrest of the process may occur that at first seems like recovery from typhoid; but here the symptoms become so variant from the usual that we begin to suspect our diagnosis.

A suspicious family or personal history may suggest tuberculosis to us in the early course of one of these cases. Of the clinical symptoms the absence of mental lethargy and the more irregular temperature curve in the tubercular subjects are the most significant variants that my own observations furnish. Knowing as well as we do how widely these vary in typhoids they certainly constitute insufficient evidence for basing a differential diagnosis. Here, however, as in the previously mentioned conditions the laboratory has come to our aid and the Widal test though not absolute, par-

ticularly in the first week will make plain the great majority of cases. In any suspected typhoid if the Widal is negative at the end of a week, if there is an unusually irregular temperature curve, if there is lack of mental hebetude, and present a tubercular family or personal history, I would gamble on the tubercular rather than the typhoid bacillus.

A third differential to which I will refer briefly is that between certain gross lesions of the kidney and inflammatory intraperitoneal conditions particularly those due to the appendix. It may be that my difficulty with these cases has been due to failure to recognize some cardinal symptoms that should differentiate, or it may be that I have chanced upon a few cases so unusual that they are of no practical significance.

I have seen a number of cases of chronic appendicitis in which the symptoms were related purely or predominantly to the urinary system. These have appeared to be due to adhesions involving the bladder or ureter or both. In one of these frequent and discomforting urination was the constant and only complaint, abdominal exploration was done on the history of two physicians who had some years before treated the patient through several attacks of what they were satisfied was appendicitis. The tip of the appendix was found firmly adherent to the bladder so that any upward pull on the caecum drew the bladder with it. The patient experienced complete relief after the removal of the appendix.

I wish to refer more particularly, however, to acute febrile conditions, such as pyelitis from stone or other obstructive cause.

A man of thirty-seven was admitted to the hospital with history of sudden onset of severe paroxysms of pain radiating from the region of the kidney down the side and into the right testicle. Blood had been passed with the urine and the patient had a markedly remittent fever. Exploration of the kidney showed it to be normal, but exploration of the abdomen gave a gangrenous appendix.

In another case the patient had marked, though somewhat atypical symptoms of appendicitis, with a well defined tumor a little high for the appendix point. Operation, undertaken in a private house, showed the appendix to be normal and the tumor to be retroperitoneal and evidently connected with the lower end of the kidney.

Operation on the kidney; in hospital a few days later, revealed a club shaped kidney the lower end being twice normal size.

Bacteriologically this proved to be an infection with the bacillus mucous capsulatis. A sample of urine secured after the patient was admitted to hospital showed quantities of the mucous product of these organisms, the urine being nearly of the consistency of the white of an egg. If this had been discovered before the first operation, it might have led to suspicion of the kidney. For the cases of obstructive pyelitis, however, the urine is not necessarily significant. The obstructing cause may be complete and prevent any passage of pus, the urine consequently all coming from the other kidney will be normal. And in these cases we do not get a hydronephrosis; only the intermittent obstructions produce this, the pelvis be stretched and emptied and stretched and emptied again and so on until a large tumor is produced. In the cases of complete obstruction, the kidney is simply put out of commission. In another case recently I explored the abdomen fully expecting to find appendicitis, which diagnosis was concurred in by the two physicians in attendance, but the temperature of the two conditions may be the same though in the pyelitis, chills and intermissions seem more likely to occur. Both being septic conditions the leucocyte count will be increased and in no way differential. Catheterization of the ureters would seem to offer the greatest aid in the diagnosis. The conditions are certainly worthy of the most careful study and confusion must result without it.

DISCUSSION.

Dr. M. R. Crain, Rutland—I don't think Dr. Gile needed to make an apology for writing a paper in this way. It is a very practical paper and I have enjoyed it very much, and I am sure the rest did the same. Where you have appendicitis as a complication in typhoid fever, the patient probably would get along all right without an operation, but a man feels a bit easier if a diseased appendix is out of the way. In a case of tubercular peritonitis that is proved to be such on the operating table or at a post mortem does not prove that the doctor who diagnosed the case as typhoid fever in the early stage of the sickness made a mistake, as we know now that tubercular peritonitis as well as pulmonary tuberculosis sometimes follows typhoid fever, but such cases emphasize the importance of blood examination as well as careful study at the bedside. I think we are justified in making an exploratory incision if we have made a careful study of the case, even if we are not able to make a pathological diagnosis, if we are sure it is a surgical case and not

a medical one. There are cases of pyloric spasms that the best diagnosticians cannot tell without exploratory incision, whether the symptoms are due to chronic ulcer of the stomach, gall stones or appendicitis, and it is much better to open the abdomen with a doubting mind, and if you cannot demonstrate an indurated ulcer of the stomach or duodenum, search carefully elsewhere for the cause of the symptoms instead of doing the gastro-enterostomy, based on a preconceived pathological diagnosis of ulcer.

Dr. Miner—I had a case where it seems that there was a pyelitis and a hydrops with complete obstruction of the ureter. When the kidney was opened there was a gush of fluid resembling old urine. There was a large amount of pus also.

Dr. B. D. Colby—I have seen more mistakes in calling inflamed appendix, especially when accompanied by vomiting, gastritis. The patient is let go on for forty-eight hours until you have a gangrenous appendix, and death resulting from that very thing.

Dr. L. M. Bingham—I would like to ask Dr. Gile if he has ever had occasion to make a differential diagnosis between appendicitis and la grippe. I have been called upon to operate for appendicitis, and on not finding all of the symptoms necessary to make me believe it was appendicitis, I advised waiting; they had temperature, vomiting, acute pain. However, the symptoms subsided and there was no further trouble.

Closed by Dr. J. M. Gile—Although there may be no great danger in exploratory operations, it is desirable to make your diagnosis before an operation. It is for that reason you should secure all the aids to the clinical symptoms. The question of the presence of hydro-pyelitis with complete obstruction of the ureter. If the obstruction is complete you do not get a hydro-pyelitis. You may get exceptional cases where there will be a small stretching and a small amount of urine. It is not certain that that obstruction has not been intermittent. As regards the differentiation diagnosis between appendicitis and la grippe, I have a number of times, three during the past year, found conditions above the diaphragm resembling pneumonia which proved to be appendicitis.

WOMEN IN MEDICINE.—During the last year, according to *Journal American Medical Association*, there were 928 women studying medicine, or 3.8 per cent. of all medical students, as against 3.5 per cent. in 1906. There were 211 women graduates this year, or 4.2 per cent. of all graduates. In 1906 there were 895 women students and 233 graduates, while in 1905 there were 1,073 women students and 219 graduates. Of all women matriculants, 210 (22.6 per cent.) were in attendance at the three medical colleges for women, as compared with 189 (21.0 per cent.) in 1906. From these schools there were 39 (18.5 per cent.) graduated, as compared with 33 (14.1 per cent.) graduated in 1906. The others matriculated in and were graduated from co-educational colleges.

Vermont Medical Monthly.

A Journal of Review, Reform and Progress in the Medical Sciences.

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EDITORIALS.

Successive legislatures have made more and more stringent the provisions against practicing medicine without a license from an official examining board. The requirements of these boards have been gradually raised also so that now in most states they not only pass on a man's knowledge of subjects purely medical but also his previous qualifications of general education. The question of a safe limit to this increase of requirements has been previously discussed in these columns and we will for this time pass it over. In spite of all these safeguards there are however ways of practicing medicine which are taken advantage of by those not qualified by education or license to do so to the obvious damage of the legally qualified practitioner. We refer particularly to the pernicious practice of drug store prescribing. That much of this is done and always has been done there can be no

doubt. One can hardly step into a drug store without hearing someone ask for and get some headache, stomach or heart medicine. Nor do these remedies always belong to the patent medicine or "nostrum" class. Very recently a so-called "highgrade and ethical" pharmaceutical house has placed upon the market a full line of its tablets in bottles of one hundred with complete indications and directions on each bottle. Further than this this house has supplied the retail drug stores with hundreds of small catalogues containing a full description of these products and their indications. The obvious intent of this is to acquaint the lay public with their preparations and stimulate direct sale. It is safe to say that for every person the doctor treats the drug store treats ten. And furthermore the person who will neglect to pay the doctor pays good money to the store. The least the doctor can do in retaliation is to taboo the preparations of this firm.

Physicians will confer a favor if they will notify the Board of Medical Registration of any supposed irregular practitioners or non-registered physicians who are doing business or advertising for business in their locality.

One such person has been driven from the state recently who held a certificate of indorsement from a prominent physician in Rutland County.

Under no circumstances will further permits to practice be given pending an examination. The board has no legal right to grant anyone such a privilege.

The next meeting of the Board of Registration will be held at the State House in Montpelier on Tuesday, Wednesday and Thursday, January 14th, 15th and 16th, 1908. Applications must be sent in to the secretary with fee before January 1st.

AGREEMENT GOVERNING RECIPROCITY IN MEDICAL LICENSURE BETWEEN THE STATES OF NEW YORK AND VER- MONT.

1. The basis on which reciprocity shall obtain between the States of Vermont and New York shall be a license earned on examination in either one of the states.

2. A candidate for endorsement of a medical license must present credentials from the officials of the state board of medical examiners which licensed him, showing that at the time of such application for indorsement he is a reputable practitioner of medicine in good standing in the profession and in the community.

3. When an applicant presents his papers for indorsement to the board of one state, and this board has reasonable doubts of the qualifications of the applicant, either personally or professionally, said board shall return the certificate of endorsement, together with its reasons, to the board which issued it, and ask for a reconsideration of the certification. Where an applicant presents a license issued prior to the establishment of reciprocity, the board to which application is made may require for its consideration the original papers on which the license was granted, or a certified copy thereof. The original license only can be indorsed by either board. No applications for other indorsements will be considered.

4. Candidates licensed by the Vermont and New York State boards of examiners, respectively, through examination, shall be eligible for indorsement of their licenses in the other state.

Candidates licensed on examination under lower requirements than those now existing in the two states may submit evidence of five years of reputable practice subsequent to the earning of their medical degrees, which may be accepted in lieu of the preliminary and the first year of the professional requirements, for the indorsement of their licenses.

5. The preliminary education required for admission to medical school shall be the same for both states, and the certification of the education department of either state shall be accepted by the education department of the other state. The standards to be required by secondary schools without the states of New York and Vermont shall be fully equivalent to those required of the schools within those states, and the schools to be registered as maintaining such equivalent standards shall be determined by joint agreement between the education departments of New York and Vermont, in accordance with a plan of procedure to be arranged by said departments.

6. The standing of the medical schools of the two states shall be determined in New York by the Board of Regents and in Vermont by the State Board of Medical Registration, and the registration thus determined by one board shall be accepted in full by the other board.

The standing and registration of all other medical schools shall be determined by joint agreement between the Board of Regents of the State of New York and the State Board of Medical Registration of Vermont, and a definite list of approved schools established, each state reserving the right of submitting evidence in reference to any institution either for removing it from or placing it on the approved list.

7. Full faith and credit shall be given by the board of each state to the examinations held by the board of the other state.

8. Applications for license under this agreement shall be indorsed in New York State by the president and secretary of the Board of Examiners and by the Commissioner of Education, and in Vermont by the president and secretary of the State Board of Medical Registration and the Superintendent of Education.

THIS AGREEMENT OF RECIPROCITY IN MEDICAL LICENSURE between the State of New York and the State of Vermont, in effect December 24, 1907, is entered upon by representatives of the State Board of Medical Registration and the Superintendent of Education of Vermont, and of the State Board of Medical Examiners and the Regents of the University of the State of New York, to remain in force until rescinded by formal action under authority of chapter three hundred and forty-four, laws of 1907, State of New York; and act one hundred and thirty-three, laws of 1901, as amended December 10, 1906, State of Vermont.

RECIPROCITY AGREEMENT BETWEEN THE STATE BOARD OF MEDICAL EX- AMINERS OF THE STATE OF NEW JER- SEY AND THE STATE BOARD OF MEDICAL REGISTRATION OF THE STATE OF VERMONT.

Reciprocity Agreement between the State Board of Medical Examiners of the State of New Jersey and the State Board of Medical Registration of the State of Vermont.

1st. The basis upon which reciprocity shall obtain between the State of New Jersey and the State of Vermont, shall be a license earned upon examination in either one of the States.

2nd. An applicant for indorsement of a medical license issued by either of the Medical Examining Boards of the above States must present credentials from the State Board of Medical Examiners which licensed him, showing that at the time of such application for indorsement, he is a reputable practitioner of medicine and in good standing in the profession and the community in which he resides and that the standard of requirements for license of the examining State is substantially the same as that of the indorsing State.

3rd. All applicants for indorsement must present credentials from the State Board of Medical Examiners of New Jersey, or the State Board of Medical Registration of the State of Vermont, showing graduation from a High School of the first grade after four years of study or an equivalent education as determined by the State Superintendent of Public Instruction of New Jersey or the State Superintendent of Public Instruction of the State of Vermont, respectively.

4th. The applicant must submit evidence of graduation from an approved medical college after four courses of lectures of at least seven months each in different calendar years. The standing of medical colleges shall be determined by joint agreement between the aforesaid Board upon the basis established by the American Medical Association and the American Institute of Homeopathy and a definite list of schools established, each Board reserving the right to submit evidence in relation to any college for the purpose of either placing it on or removing it from the approved list.

5th. The applicant for indorsement must submit satisfactory evidence of good moral character attested by two regularly licensed practitioners of the State

in which the applicant resides, and present a letter from a legally licensed physician of the State from which he seeks indorsement, recommending that a license be granted him.

6th. The applicant shall present with his application a recent photograph of himself with his name written on the back in the presence of a legally qualified official who shall certify over his seal to the identity of the photograph with the applicant and to the genuineness of the signature.

7th. The aforesaid Boards agree that all examinations shall be written and in the English language and shall conform substantially to the following requirements. Subjects: (1) Materia Medica and Therapeutics; (2) Obstetrics and Gynecology; (3) Practice of Medicine; including physical diagnosis and diseases of the Skin, Nose and Throat and diseases of Children; (4) Surgery, including surgical Anatomy and diseases of the Eye, Ear and Genito-Urinary organs; (5) Anatomy; (6) Physiology; (7) Chemistry; (8) Histology, Pathology and Bacteriology; (9) Hygiene and Medical Jurisprudence. A total of ninety questions must be answered, ten in each section, to which two hours shall be given.

Examinations shall continue through at least two days and one evening. The applicant shall be known to the examiner only by number and a general average of 75% must be obtained to procure a license of the Board. Results of the examinations shall be reported within two weeks after examinations close.

8th. Only the original State license issued after examination shall be indorsed by either Board; indorsement upon another indorsement shall not be granted.

9th. When an applicant presents his credentials for indorsement to the Board of either State and said Board has reasonable doubts of the personal or professional qualifications of the applicant, said Board may return the credentials together with its objections to the Board which issued them and ask for further information. In the event of failure to submit satisfactory evidence of qualifications in a given case either Board may refuse to grant indorsement without prejudice to this agreement. When an applicant presents a license issued prior to the establishment of this agreement, the Board to which application is made may require for its consideration the original papers on which the license was granted or certified copies thereof.

Licentiates who graduated prior to 1894 and who have been in continuous and reputable practice since graduation may be indorsed upon certified and satisfactory evidence of moral character; of two courses of medical lectures in different calendar years prior to graduation; of a competent academic education according to the standard of that time as determined in the case of non-graduates of academic institutions by the State Superintendent of Public Instruction of the State of New Jersey or the State Superintendent of Public Instruction of the State of Vermont, and of having passed the examination of either State Board.

Candidates for indorsement who graduated prior to July 4th, 1903, and have been in continuous and reputable practice for at least five years since graduation and who have been examined and licensed by either Board, may be indorsed by either Board upon presentation of certified and satisfactory evidence of good moral character, of three courses of medical lectures in three different calendar years in an approved college and of a competent academic education according to the standard of that time, to be determined by the aforesaid educational authorities of either State; provided however that such exemption be specified in the license.

10th. No person who has been rejected by either Board shall be privileged to have a license indorsed by either State unless a period of at least six months shall have elapsed since such rejection occurred.

11th. Full faith and credit shall be given by the Board of Medical Examiners of each State to the examinations held by the Board of Medical Examiners of the other State.

12th. Each State Board agrees to notify the other State Board of any changes in laws, rules or methods of conducting examinations and this agreement shall remain in force only as long as above rules and agreements are observed; any deviation from the same shall be considered as full cause for annulment of above agreement.

This agreement shall be signed by the President and Secretary of the State Board of Medical Examiners of New Jersey and by the President and Secretary of the State Board of Medical Registration of the State of Vermont, with the seals of the States attached, respectively.

Signed for New Jersey,

.....President.
Attest.....Secretary.

[SEAL]

Signed for Vermont,

.....President.
Attest.....Secretary.

[SEAL]

BOOK REVIEWS.

DISEASES OF THE RECTUM—Their Consequences and Non-Surgical Treatment, by W. C. Brinkerhoff, M. D., Steinway Hall, Chicago. Published by Orban Publishing Co., Chicago. Price \$2.00.

The author has evidently written this book to impress upon the laity the importance of rectal diseases and the efficiency of his special system of treating them, more than to produce a treatise on diseases of the rectum. He evidently is laboring under the impression that physicians generally and surgeons in particular are a menace to the health, if not the lives, of patients suffering with diseases of the rectum, and that his system is the only rational treatment for these diseases.

MANUAL OF DISEASES OF THE EYE—By Charles H. May, Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. 1890-1903; Ophthalmic Surgeon to the City Hospitals, Randall's Island, New York; Consulting Ophthalmologist to the French Hospital, to the Gouverneur Hospital, and to the Red Cross Hospital, New York; Adjunct Ophthalmic Surgeon to Mt. Sinai Hospital, New York, etc. Fifth edition revised. With 362 original illustrations, with 22 plates, with 63 colored figures. 1907. The price of the book continues the same, \$2.00 net.

This book has been through too many editions to need an introduction. The author has endeavored to produce a book which treats of the more common diseases quite fully, and discussing the rare conditions with brief men-

tion. It was intended to be a book for the student and practitioner instead of the specialist, and the effort has succeeded most admirably.

PHYSICIAN'S VISITING LIST, 1908-1909.—By Lindsay and Blakiston. P. Blakiston's Son & Co., Publishers, 1012 Walnut St., Philadelphia. Price \$1.00.

This familiar and always welcome little book has made its appearance for 1908. The publication is too well known to need any description. The 1908 edition is in the same form as that of the previous year and will as usual find a place in the pockets of a large number of physicians.

PERPETUAL VISITING AND POCKET REFERENCE BOOK—128 pages, J. H. Chambers & Co., St. Louis, Mo. Price 50c.

This is a convenient and useful reference book as well as a visiting list and obstetrical memoranda. It gives Clinical Emergencies, Poisons and Antidotes, Dose Table, Incompatibles, Nurses' Addresses, Bills, Cash, etc., etc. Sent post-paid on receipt of 24 two-cent stamps.

A TEXT BOOK OF PHYSIOLOGY by Isaac Ott, A. M., M. D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia; Ex-Fellow in Biology, Johns Hopkins University; Consulting Neurologist, Norristown Asylum, Penn.; Ex-President of American Neurological Association, etc. Second Edition, Revised and Enlarged. Illustrated with 393 half-tones and other engravings, many in colors. F. A. Davis Co., Publishers.

The second edition of this book incorporates all the latest findings in physiological research, making it thoroughly up to date. It is a complete, reliable, readable, treatise on physiology.

TREATMENT OF DISEASES OF CHILDREN by Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Octavo volume of 597 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.00 net; Half Morocco, \$6.50 net. W. B. Saunders Company, Philadelphia and London.

The author has endeavored to produce a book for the general practitioner, and with this end in view has given a more detailed discussion of the newer methods of treating and caring for children than is given in the general text-book on this subject. It is not a compilation from the literature on diseases of chil-

dren, but the practical deduction from the author's extensive practice in caring for and treating children. It is an exceedingly practical book and should be of more than ordinary service to the practitioner.

THE PHYSICIAN'S VISITING LIST, 1907-1908 (Lindsay & Blakiston's). Fifty-sixth year of its publication. Regular edition. Hereafter all styles will contain the Special Memoranda Page. For 25 patients per day or week, pencil, pocket, etc., \$1.00. P. Blakiston's Son & Co., Publishers, 1012 Walnut Street, Philadelphia.

This little book has demonstrated its usefulness during the past fifty-five years of its existence. It is in its own field excelled by none.

ASSOCIATION OF THE RUTLAND RAILROAD SURGEONS.

ANNUAL MEETING, THURSDAY, DECEMBER 19, 1907,
VAN NESS HOUSE, BURLINGTON, VT.

The Third Annual Meeting of the Rutland Railroad Surgeons will be held at the Van Ness House, Thursday, December 19, 1907. The meeting will be called at 1.45 p. m.

We are unable to arrange for stopping the sleeper (train 52) going South at 10.20 p. m. at any station aside from its regular stopping places.

On account of the ruling of the State Railroad Commissioners, the Railroad Company is unable to furnish passes for the wives of the physicians.

DR. S. E. MAYNARD, President.

DR. S. S. EDDY, Secretary.

PROGRAMME.

Treatment of Litigation Neuroses,

Dr. C. S. Caverly, Rutland, Vt.

Discussion by Dr. H. H. Swift, Pittsford, and

Dr. F. S. Stoddard, Shelburne.

Functional Treatment of Fractures Involving Joints,

Dr. L. H. Ross, Bennington, Vt.

Discussion by Dr. G. G. Marshall, Wallingford,

and Dr. C. W. Phillips, Arlington.

Traumatism of the Kidneys,

Dr. J. P. J. Cummings, Ticonderoga, N. Y.

Discussion by Dr. S. W. Hammond, Rutland,

and Dr. T. C. Hack, Proctor.

Address,

Hon. H. H. Powers, Morrisville, Vt.

Address,

Dr. C. B. Herrick, Troy, N. Y.

Discussion by Dr. C. A. Pease, Burlington,

and Dr. C. W. Peck Brandon.

Experiences in the Work of the Railroad Surgeon,

Dr. F. C. Phelps, Vergennes, Vt.

Discussion by Dr. F. D. Whitehead, Burke,

and Dr. J. S. Van Vechten, Chateaugay.

Address,

Dr. L. M. Bingham, Burlington, Vt.

Discussion by Dr. G. H. Gorham, Bellows Falls,

and Dr. W. N. Bryant, Ludlow.

Business Meeting.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

VALUE OF LABORATORY METHODS IN THE DIAGNOSIS OF TYPHOID FEVER.

BLUM (*La Semaine medicale*, Sept. 11 1907) reviews minutely the various facts and statistics in connection with this subject. He considers in turn the method of growing cultures from the blood, the serum reaction of Gruber-Widal, the diazo reaction, and the enumeration of leukocytes. The best of these, according to his experience, which has been very large, including 360 cases of typhoid fever treated in the medical clinic at Strasburg, is the method of culture. The finding of the typhoid bacillus in the blood of a patient is certainly absolute proof that he is suffering from typhoid fever. The test is only of value however if it is conducted in the proper way. No value should be placed upon tests made with a drop of blood from the ear, but the blood should be removed aseptically from a vein and collected in sterilized vessels. Thanks to modern perfection in bacteriological technique, the typhoid bacillus can be found in from 80 to 100 per cent. of cases of typhoid fever at the very onset of the disease. The method which he employed was that of Keyser-Conradi. This is based upon the property of the bile to favor a development of the typhoid bacillus. The culture medium required is small in quantity, 5 c.c. being inoculated with 2 or 3 c.c. of blood. The cultures can easily be transported and mailed.

In 36 cases of typhoid examined during the first week, cultures from the blood were taken 32 times. In the severe cases, the bacillus was always found in the blood; in the moderate cases, it was found in about 75 per cent., and in the mild cases, in about 50 per cent., during the first week. After this period the cultures from the blood give a positive result in 81 per cent. of the severe cases. The failures increase in number, however, in the moderate and mild cases as the disease goes on. Thus, in the second week, in the mild cases, the bacillus are encountered in only one case out of eighteen; in other words, in 6 per cent. After the second week the examination is always negative in mild cases. Therefore it may be said that the probability for encountering the bacillus in the blood increases as the infection increases in severity, and is greater the closer we are to the beginning of the disease.

The Widal test is probably the most popular method of diagnosis of typhoid fever. It is very simple and requires but a few drops of blood. Unfortunately, it is negative in the first week in about 50 per cent. of cases. It is especially inferior in the severe and moderate cases, while in the milder cases serum diagnosis is of greater value than the bacteriological examination of the blood. In the later periods of the disease both procedures have about the same value in the severe cases, and the serum test is more valuable in the milder cases.

It was interesting to find a number of patients in whom bacilli were found in the blood, although the serum reaction had remained negative during the entire disease. Another point in connection with the Widal test is that, while it indicates a typhoid infection, it does not show that the patient is at present affected with this infection. The power to agglutinate typhoid bacilli remains in the serum for months and years. To sum up, then, the Widal reaction, when absent in the first week, does not prove anything because this occurs in 50 per cent. of cases. When present, we must not conclude at once that the

typhoid fever is now in the course of development, for it may have existed before, and the present disease may be something else.

The search for bacilli in the excretions of the patient is of but very little value. The method is difficult, and the identification of the germ is not always certain.

The diazo-reaction has but very little value in the diagnosis of typhoid fever. In the mild and moderate cases, in which it might be of help, it is often absent. Its absence at several examinations during the course of a febrile disease is almost a sure sign of the absence of typhoid. Its presence, however, in other diseases lessens its value as a diagnostic method.

The diminution of the number of leukocytes and the increase in the lymphocytes is of some value in the diagnosis of typhoid fever, especially in the differentiation of typhoid relapses from other secondary complications.

Finally, when all these methods fail, and when the clinical examination points to the presence of typhoid fever, we are still justified in making a diagnosis of typhoid infection, so that laboratory methods, after all, are only of secondary importance in this disease. —*La Tribune Medicale*, Nov. 1907.

INDICAN UROBILIN AND THE DIAZO-REACTION IN TYPHOID FEVER.

CARLETTI (*Morgagni*, February, 1907) studied these phenomena in a number of typhoid cases. The diazo-reaction is said to be characteristic of typhoid fever, and indican urobilin are said to be very frequently present in these patients. Indicanuria is constant in typhoid and lasts during the entire febrile period and during the first days of the convalescence. It is not always parallel in intensity to the febrile curve. Constipation does not produce any change in the indican excretion, provided it be moderate. Indicanuria, however, increases considerably after errors of diet. Indicanuria is also present in acute gastroenteritis accompanied by fever. On the other hand, the diazo-reaction is always absent in the urine of persons with gastroenteritis. It usually disappears in typhoid a few days after the fever has subsided, and reappears when a relapse occurs.

Urobilin is found quite constantly in the course of typhoid fever, whether or not the liver is enlarged. It is not accompanied by the presence of a biliary pigment.

There is an evident and constant relation between indicanuria urobilinuria and the diazo-reaction in typhoid fever, particularly between the latter two phenomena, for the indicanuria may persist for quite a while after the fever has disappeared. This persistence of the indicanuria sometimes predicts the possibility of relapses, and when it is present it should warn us to be careful how we allow solid food. Herein lies the principal prognostic value of indicanuria.—*La Tribune Medicale*, Nov., 1907.

FALSE PULMONARY HÆMORRHAGES IN HYSTERICAL PATIENTS.

BOISSEAU (*Semaine medicale*, August 7, 1907) in a recent paper discusses the existence of hysterical false pulmonary hæmorrhages. A number of clinicians, including Babinski, doubt the existence of such cases. Boisseau had occasion to observe in a tuberculous woman who showed no symptoms of hysteria pulmonary hæmorrhages of the type usually described as hysterical. They occurred either as supplementary to the menstruation or following mental emotions. During the attacks a few congestive râles and a

slight elevation of temperature were noted, but aside from this auscultation did not reveal any marked physical signs. The examination of the sputum was negative. Later, however, the disease developed clearly and the bacilli appeared in the sputum. The case therefore presented at first all the classical features of hysterical hæmoptysis. Many clinicians have doubted the hysterical character of these cases especially when they are accompanied by fever and moist râles. It is probable that most cases which have been described as hysterical were cases of tuberculous hæmorrhage occurring in hysterical women who had recovered from their tuberculosis.—*La Tribune Medicale*, Nov. 1907.

In view of the extremely unfavorable prognosis of tuberculosis in the first two years of life, the use of tuberculin injections is justifiable in every case of the disease occurring at this age. It is only through a large number of cases treated with these injections that we can hope to obtain an estimate of the tuberculin treatment in children, the results of the method being quite uncertain at the present state of our knowledge.—*Med. Review of Reviews*, November.

OPERATIONS UPON THE HANDS AND PRELIMINARY TREATMENT.

VOGEL (*Munch. Med. Wchschrft.*, 54, 4, 1907). Upon the basis of favorable experience with his method of preliminary treatment for operations upon the hands, the author again points out the advantages of the following procedure: The hand is made to perspire to a considerable degree for one hour at a time twice daily for about two to four days in Bier's hot-air apparatus. Then the hand is washed in the customary manner. The perspiration causes an exit of the agents of infection from the depths of the skin, rendering it possible to obtain a sufficient freedom from germs in the skin by means of the usual disinfection with hot water, alcohol and bichloride of mercury immediately before the operation. The method was tested with a brilliant success even in the hardened and callous hands of laborers. All the wounds healed by first intention, including tendon sutures. Suppuration of suture channels was not observed in a single instance. The medico-mechanical after-treatment could be instituted at the end of a short time. A further advantage of the method consists precisely in the production of hyperæmia. This causes the vascular supply of skin flaps formed in the course of operation to remain so perfect, as far as the most most remote tips, that these flaps will heal in without trouble. This is illustrated by a specially instructive case, in which a new lining of the entire vola manus was formed from the skin of the disarticulated index finger after this part of the hand had been entirely excised on account of severe cicatricial changes.—*Med. Review of Reviews*, Nov.

TREATMENT OF SCIATICA BY MEANS OF ENTEROCLYSIS AT HIGH TEMPERATURE.

ANNEQUIT (*Dauphine medical*) says that water at a very high temperature introduced into the intestine acts directly upon the branches of the sciatic nerve and of the sympathetic plexus as well as upon the pelvic ganglia. In accordance with this principle Annequit utilized injections into the intestine at high temperature in the treatment of sciatica. In addition to their effect upon the nerve these treatments also improve the digestive functions and diminish the process of intoxication. He recommends irrigations with water at 48° C. at first, which gradually should be increased to 55° or 56° C. The patient tolerates these well if the fluid is introduced very slowly and the irrigations suspended when spasm occurs. The receptacle should not be elevated more than 30 or 40 Cm. and should be wrapped in wool so as not to lose its heat too rapidly. A flexible rectal catheter is used. The best fluid is a physiological salt solution made by dissolving two teaspoonfuls of common salt in a litre of water. The treatment may be preceded by a small evacuating enema at lower temperature. The patient should lie on his right side with his knees flexed and later should turn upon his back to avoid cramps and to retain the fluid as long as possible. The treatment may be continued indefinitely without any bad results.—*La Tribune Medicale*, Nov., 1907.

CURABILITY OF TUBERCULOSIS AND THE USE OF TUBERCULIN IN CHILDREN.

ENGEL (*Brauer's Beitr. zur Klinik der Tuberkulose*, VII, Vol. 3, 1907). There are only a few isolated cases on record in which an attempt was made to introduce tuberculin into the field of paediatrics. The author treated a child 15 months of age in this manner. The patient died, but there was a distinct encapsulation of the tuberculous focus in the lung. His study of the corresponding literature led the author to the conclusion that the signs of a tendency to anatomical cure (encapsulation of the focus) were never observed in tuberculous children within the first year of life. The case described by him is the first one on record for the second year as a positive instance of a fibrous change of the tuberculosis. In the third year and later anatomical recovery and repair are not so very uncommon, but a complete cure is rare. Infantile tuberculosis in general has a mortality about twice as great as adult tuberculosis. The beginning of the disease in the child is located in the bronchial glands, and the subsequent course is dependent upon the behaviour of these glands. A cure is possible in those cases only where the tuberculosis remains limited to the lymphatic system.

OXYTOIC ACTION OF QUININE.

MAURER (*Nouveaux Remedes*, May 24, 1907) advises the administration of quinine in the following form to women in labor: A first dose of one gramme of quinine sulphate is administered by mouth in a wafer. If no effect is produced upon the pains within an hour a second dose of 50 centigrammes is given, and if necessary a third dose of the same size half an hour afterward. It is useless to go above two grammes. The drug is usually well borne by mouth. In a few cases, however, Maurer was obliged to have recourse to hypodermic injections. He has never seen any unpleasant effect follow such injections as have been reported by authors in France and Germany. The drug acts by increasing the excitability of the uterine muscle.

TYPHOID FEVER AND THE URINARY SYSTEM.

An intersting case of nephro-typhoid is reported by Napier and Buchanan (*Glasgow Med. Journ.*, Dec.) The symptoms were those of acute hæmorrhagic nephritis without anasæra, and the nature of the case was only detected through the discovery that the urine was swarming with bacilli, which were

identified as Eberth's bacillus. The temperature curve was fairly characteristic of typhoid; the pulse varied from 80 to 100. There were neither abdominal symptoms, splenic enlargement, nor rash. The stools were formed and did not contain the bacillus typhosus. Bacteriuria continued for four months from the onset of the illness. Recovery was complete. It is now known that bacilli occur in the urine in about a quarter of all cases of typhoid, and that infection can be conveyed in this way. In the case in point two of the patient's attendants contracted the disease. The relation of bacteriuria to the kidneys has been studied by Vas (*Wien. Klin. Wochenschrift*, 1906, No. 13) with the object of determining whether there is any connection between the excretion of the organism in the urine and the occurrence of nephritis. He found that bacteriuria occurred in six out of 26 patients, generally between the third and eighth week. On the whole, it was seen chiefly in bad cases. While it was generally accompanied by signs of nephritis (albumin and casts), this was not invariable, and, on the other hand, albumin and casts occurred quite independently of bacilli. Brownlee and Chapman (*Glasgow Med. Journ.*, 1906, December) records cases of pyelitis in typhoid. In two of them temporary signs of nephritis were also present. No statement is made as to the presence or absence of bacteriuria. A full account of the histological changes in one case is given.—*Edinburgh Medical Journal*, February, 1907.—*Med. Review of Reviews*, November.

APPENDICITIS, WITH SYMPTOMS ON THE LEFT SIDE.

CONCETTI (*Arch. de Mal. des Enfants*, Dec. 1906.) The occurrence of appendicitis under chief localization of the symptoms on the left side was especially described by Tenglave in his Inaugural Dissertation (*Montpellier*, 1906). The author was enabled to observe two corresponding cases in children three and six years of age, respectively. In both these cases there was necrosis of the vermiform appendix, with an accumulation of infectious substances in the abdominal cavity, leading not to a local infection, but to a rapid acute inflammation of the entire peritoneal serosa, the pathognomonic symptoms being chiefly localized in the left half of the abdomen. The six-year-old patient recovered after repeated laparotomies and evacuation of various collections of pus. Surgical interference is absolutely required in these cases, in which the condition of the appendix must be determined, since without it recovery is hopeless, notwithstanding all antiseptic flushings, etc., because the pathogenic cause persists in shape of a discharge of faecal matter into the free abdominal cavity. In both the author's cases small fecoliths were found in the appendix, presumably the cause of the necrotic process.—*Med. Review of Reviews*, November.

CHEMISTRY OF THE URINE IN A STARVING INDIVIDUAL.

BRANDEIS (*Gas Hebdomadaire de Bordeaux*, March 24, 1907) published a study on this subject which throws some light on the urine in inanition. The subject was a man who had not taken any food for twenty days. During this time the amount of urine diminished quite rapidly down to about 500 grammes in twenty-four hours. On the fifth day the urea was 2.87 grammes in twenty-four hours, on the tenth day 3.33, on the fifteenth day 2 grammes, on the eighteenth day 3.36 grammes. The chlorides had diminished to 0.80 grammes, 0.36 grammes, 0.82 and 0.46

grammes, respectively. The phosphates varied from 0.41 to 0.14.

The urine therefore shows a greatly diminished chemical activity on the part of the organism, the body apparently adapting itself to the peculiar conditions of starvation. The liver especially had reduced its function to the minimum, as shown in the diminution of the urea.—*La Tribune Medicale*, Nov., 1907.

PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.

JOHN D. O'BRIEN (Massillon, Ohio) concludes that the importance of an antecedent syphilitic infection in general paralysis, and the action of such in the production of the disease, leave much doubt, but it is safe to say that it is undoubtedly a predisposing factor, and probably acts by weakening the immunity. Almost all authorities at the present are satisfied that general paralysis is a toxæmia, a bacterial toxæmia, as evidenced by the temperature, leucocytosis, the progressive course, and now the finding of an organism, to which we can attach considerable importance. This organism, diphtheroid in character, was first studied by Ford Robertson, McRae and Jeffries, who first called our attention to it. Its cultural and morphological properties to a certain extent resemble the Klebs-Loeffler bacillus; again they think it may be merely an attenuated or saprophytic form of the true Klebs-Loeffler bacillus, which by its long residence may have undergone a certain exaltation of virulence. In a search for this organism the stomach wash of 14 general paralytics who had been fasting was obtained, and in 11 cases this organism predominated. In the examination of the urine of 10 cases the organism was isolated in seven instances. The examination of the throat and nose of 12 general paralytics recalled the presence of this diphtheroid organism in 10 instances. The only cases of general paralysis in which we failed to obtain this organism were those in a state of remission. I do not doubt but that the organism is present even before any symptoms appear. Further experimental investigations, such as inoculation of rats and guinea-pigs, led to the production of some few subjective symptoms of general paralysis of insane. These are some facts which tend to support the view that this diphtheroid organism is undoubtedly exerting a pathogenic action, and it remains for future investigation to establish it more thoroughly.—*American Medicine*.

MASSAGE OF THE PROSTATE has become a regular method in appropriate cases. (*Am. Jour. Dermat.*) It should be beneficial; it has been warmly endorsed and recommended by the best living genito-urinary surgeons. The good that has resulted when done by experts has, however, led to the practice by the inexperienced—and sometimes with disastrous results. Cases must be selected; not all are suitable for massage, which is a delicate procedure, to be done with due caution and care. The prostate is a delicate structure and will resent maltreatment; it must not be kneaded as if it were a lump of hard putty. Besides, continued massage is very apt to produce irritation of nerves belonging or related to the sacral plexus; one may therefore thus induce gluteal and sciatic neuritis and other neural disturbances in the pelvic region. A cautious and gentle massage, employed once a week is beneficial; but a rough and ready manipulation daily or every other day is certain to produce bad and disagreeable effects.

MATRIMONIAL STERILIZATION.—Zola said, in "Fécondité," that there were twenty thousand women in France who for their own purposes had submitted to be unsexed. Even if this estimate, and the statements to the same effect by Léon Daudet, in "Les Morticoles," and by Camille Pert, in "Les Florifères," be greatly exaggerated, it is certain that a large number of French women who wish to escape from the burden of motherhood find operators unscrupulous enough to "sterilize" them. The following story, which is told of Tillaux, shows how much a matter of course such proposals must seem in a certain class of Parisian society: A married couple were one day shown into his consulting room. The lady explained the situation, saying that her husband and she were so entirely wrapt up in each other that they were anxious their matrimonial bliss should not be interrupted by the tiresome presence of a third person in the form of a child; wherefore, she added, lowering her voice, her husband had advised her to place herself in the skilful and discreet hands of the distinguished surgeon. Tillaux was taken aback for a moment, but instantly recovering himself, turned to the husband, who was smiling approval of his wife's words, and said to him: "That is a very happy idea of yours, sir; but as the operation is much easier, less dangerous, and more efficacious when done on the man, I am willing, if you wish, to perform it on you!" Needless to say, the offer was declined. The witty surgeon must have felt a malicious pleasure in seeing the selfish husband go forth a beaten, if not a better, man.—*British Medical Journal*.

NERVOUS SYMPTOMS DUE TO INTESTINAL WORMS IN CHILDREN.

DELILLE (*Bull. gen. de thérapeutique*, July 15, 1907) reported to the Pediatric Society of Paris a case of a boy of nine years who presented the symptoms of meningitis, which was assumed to be due to an attack of influenza. The child vomited a worm and received in three doses, within several days, 10 centigrammes each of calomel and santonin. Thanks to this treatment he passed twelve ascarides and his nervous symptoms immediately disappeared. Broca at the same meeting reported that he had seen cases of lumbricosis with fever and pains in the stomach resembling appendicitis. After santonin had been given all symptoms disappeared. It is well therefore to beware of intestinal worms when obscure signs of meningitis or of appendicitis arise in children.—*La Tribune Médicale*, Nov., 1907.

COLD PACKS IN INFANTILE PNEUMONIA.

HEKIMOGLU (*La Clinique*, Feb., '07), finds that drugs are practically useless and that the essentials of treatment are plenty of milk and free ventilation. He watches carefully for the appearance of cerebral or typhoid symptoms, which are apt to supervene in young children. In severe cases with nervous symptoms he uses cold packs (which he prefers to cold baths) as follows: A blanket is laid upon the bed and upon it a sheet which has been soaked in cold water. In this the child is wrapped up, the sheet being folded well around and between the legs and arms, so that the whole body comes in contact with it. The blanket is then folded over the sheet. The child is left in this sheet, which is then periodically remoistened until cure results or until such unfavorable symptoms as convulsions, trismus or opisthotonos have disappeared. Some cases have remained in the pack from six to ten days, the wet sheet being renewed at first every half hour and then every hour.

The Visiting Staff of the Boston Floating Hospital request all those interested in the formation of a New England Pediatric Society to meet at the Boston Medical Library, 8 The Fenway, Saturday, January 4th, 1908, at 8.15 p. m.—*Henry I Bowditch, Sec.*

Beginning with January *The American Journal of Urology* will be edited by Dr. William J. Robinson, Editor of the *Critic & Guide*, *Therapeutic Medicine*, etc. The journal will be enlarged in scope so as to include venereal and skin diseases and there will be added an abstract department which will review the genito-urinary and dermatologic literature in every civilized language. The subscription price has been reduced to \$2.00. The publication and editorial offices have been removed to 12 Mt. Morris Park West, New York City.

ACQUIRED CAUSES OF INSANITY are use and abuse of such agents as alcohol and opium, excesses of all kinds, mental and physical strains, overstudy, excessive grief, domestic infelicity, malformations, disturbances of circulation, acute diseases and injuries of all kinds.—Punton: *The Kansas City Medical Index-Lancet*.

AN EFFECTIVE COUNTER IRRITANT.—A sufferer living near Albany, N. Y., had applied to his arm an old-fashioned poultice, of which one of the ingredients was gunpowder. A stray spark from a match ignited the powder; the poultice exploded, setting fire to the clothing and badly burning the already afflicted member.

A CLAIM OF \$100,000 FOR MEDICAL SERVICES was allowed by a jury to Dr. Ziegler of Chicago, who produced in court a contract with a patient who had died, to the effect that if he would devote all his time to caring for her he should receive that amount at her death. He acted in this capacity and upon these terms during several years.

AS A SCHOOL OF CHARACTER, it is doubtful, declares the *Lancet*, if any better could be devised than the routine career of a medical student. "It is not claimed that every medical student at the end of his five years' curriculum will be found to have become a saint. But if he has not developed manly qualities of self-

restraint, courage, gentleness, and forbearance it is not for want of opportunity of practicing these virtues."

MEDICAL WARNINGS AGAINST TOBACCO.—The *Sun* whimsically observes concerning Osler's advice to medical students against smoking too much: "Smoke is an honored prophylactic of the profession; and of the irritations one has to endure from the sons of Galen, is there one sharper than the solemn authoritative way in which a physician warns you to quit smoking, while cigars bulge insolently from his own pockets?"

BY THE NATHAN STRAUS BENEFACTION, pasteurized milk has now for fifteen years been dispensed in New York City. In the season of three months closed in September, seventeen stations were maintained and nearly three million bottles and more than one million glasses of milk were sold or given away. Throughout the year six stations will be continued. Mr. Straus's plan has been copied in nearly 400 cities in all parts of the world.

DR. LAWRENCE F. FLICK, Director of the Phipps Institute, and Chairman of the Committee on the International Congress of Tuberculosis, which will be held in Washington in the fall of 1908, is raising a fund of \$100,000 to meet the necessary expenses of the assembly. It is expected that the United States will appropriate \$25,000 to help to meet these expenses, and that individual states will contribute liberally to their separate exhibitions.

TO FIGHT THE PLAGUE IN SAN FRANCISCO, surgeons of the Marine Hospital service were ordered to the assistance of Dr. E. Blue, who, at the request of the mayor, had been placed by the federal authorities in charge of the situation, which certainly called for drastic measures. Twelve district headquarters were established in the city, and the physician in charge of each made daily reports to Dr. Blue. Measures of eradication were then recommended by him to the local Board of Health, which ordered these measures to be carried out.

"IT IS NOT A PROFESSION, it is a trade that the doctors ply to-day," recently declared an emotional preacher. "It is not the practitioner

of a profession, who, with his commission to heal from on high, goes into a household and demands his fee of \$500 or \$1,000 before he will apply the knife to the cancer, the anæsthetic to the wound. Such practices ought to be condemned from every pulpit, every rostrum in the land. The Government ought to step in and prevent them." We have not been aware that such practices as these are very general in the medical profession; we know they are not.

CHIMPANZEES are now quoted at \$150 each; and they are very scarce, even at that price. From the point of view of the scientific experimenter this is regrettable. Only thus can we ascertain in a measurably satisfactory way how certain antitoxins and bacillary emulsions affect the human subject. Prof. Metchnikoff, it is reported, is particularly worried. This always brilliantly original man is on the track of the germ which he believes causes appendicitis; and he needs the chimpanzee for his investigations. But the creature comes high, even for the generously endowed Pasteur Institute.

DR. JAMES CARROLL died recently in his home in Washington. He was a member of a commission which was sent to Cuba to study yellow fever just after the close of the Spanish war. In order that the stegomyia might be fixed definitely as the medium of transmission in yellow fever, he allowed himself to be bitten by a mosquito that had been infected from three distinct cases. Four days after being bitten he developed the fever. His last illness was the direct result of his work in the study of tropical diseases. Dr. Carroll, "Major and Surgeon," was appropriately buried with military honors in the national cemetery at Arlington.

THE TRACHEOTOMY WOUND is not to be sucked, declares *The Hospital*; the surgeon is almost certain to become infected by this dangerous procedure. The immediate dangers of a tracheotomy seem always greater than they really are. Even with cessation of breathing during the operation, life may nearly always be restored by opening the trachea with all convenient speed, and then, without trying to introduce a tube, doing artificial respiration while the edges of the trachea are held apart.

Blood can be prevented from clogging up the trachea by making the opening in it sufficiently large, and by bringing it up to the edges of the skin incision at once. Any membrane blocking the tube can be removed with a feather or be picked out with a pair of laryngeal forceps.

GERMAN ARMY HEALTH RULES.—The new German Field Sanitary Regulations, which have recently been received by our Surgeon-General, and a translation of which is being prepared for distribution in our medical corps, are the result of the trial of the German methods by the Japanese in their war with Russia. The Japanese army was organized and equipped after the German standards; and it has thus been possible for the latter to observe the results and profit by the experiences gained in actual warfare. Among the important changes are: A great increase in the authority of the surgeons, and the placing of the sanitary department personnel upon a military footing, with rank and titles as in the regular force; all non-combatants are made a part of the regular organization and subject to orders; a portable X-ray apparatus and portable bacteriological laboratory are provided for field use; special water wagons, dental outfits (with special equipment for treating fractures of the jaw) are also provided; the supply of cavalry-bags and folding litters, which may be carried on mules, is augmented; a new first aid packet is used, two of which are issued to the German soldier, and which about equal the one in use in our army. The regulations also require the presence of a field sanitary expert with each army corps.

THORACIC ANEURISM.—Oliver (*Brit. Med. Jour.*, March 16, '07) insists upon rest in bed, quietude and a restricted diet as essential. Cases unaccompanied by aortic incompetence are more amenable to treatment than those arising just above the aortic orifice and accompanied by regurgitation; in the latter there is lacking the comparative inaction necessary for blood coagulation. Iodide of potash gives on the whole the best results; it often relieves pain and paroxysmal dyspnoea. An ounce may be given in a day; but there is nothing to be gained from such large doses. Sometimes the

results are not satisfactory, as when this drug is pushed to the degree that lowered blood pressure with increased heart action results; this prevents a deposition of the clot in the aneurism. Calcium salts, although they are known to favor coagulation of the blood, have not been as satisfactory in Oliver's experience as the potash salts. Even with potassium iodide, however, there are few real cures of aneurism, although much relief is obtained. In distal aneurism spontaneous clotting may take place; but this occurs very seldom in thoracic varieties. Oliver has had no experience with silver-wiring or needling. Several cases received gelatin subcutaneously, in the tissues circumscribing the sac. Some of these patients complained of great pain in the parts afterwards; in others there was always a slight rise of temperature and discomfort; in a few the aneurismal pulsations became less marked and the tumor became harder and shrunken. Apart from the pain of a gelatin injection, there is the possibility of tetanus; it is very difficult to sterilize this substance. Several patients left the infirmary much better; but the cure was never complete, for in some the sac ruptured weeks or months afterward. A great difficulty which Oliver experienced in treating thoracic aneurisms was in getting patients to remain content under treatment; rest in bed and the restricted diet become in time quite irksome, so that treatment is given up when relief is experienced.

THE CHEMISTRY OF THE LIVING CELL.—V. C. Vaughan (*Canadian Jour. Med. and Surg.*) declares that a most important group of cellular secretions is made up of the ferments or enzymes. All the ferments are cellular products. A ferment is a substance of definite chemical composition formed by the rearrangement of the atomic groups within the cellular molecules. The action of the ferment, while it is determined by the cell which produces it, is not concerned in the "energy traffic" constantly going on between the molecules of the cell which produced it and other molecules external to this cell. With our present limited knowledge of the chemistry of the cell molecule, it is impossible, at least in many cases, to distinguish between the chemical reactions resulting from cell metabolism, and those due to ferments. The func-

tion of a ferment is to hasten chemical reactions, which take place (but far more slowly) without the presence of the ferment.

THE PARIS MORGUE, which has so long had a gruesome interest for the tourist and the reader of French fiction is, it seems, now doomed. After some fifty years its notorious existence is to be ended. The very large æsthetic element of the Paris population, states the daily *Times*, exults in its approaching demolition. The doctors of Paris have complained that it is outgrown and that there is needed a more modern repository, and in a different quarter. There is, of course, needed in every great city a place where the unknown victims of unnatural death, of accident or of crime, can be viewed together with their belongings, for possible identification. Considering how large a quota of these victims were contributed by the Seine, the gruesome old place by its bank had the merit of convenience. Those Parisians of æsthetic temperament rejoice that it will now be possible to see the rear of Notre Dame cathedral (perhaps the most picturesque of all its aspects) without any other immediate surroundings than those of foliage. But the artists are admonishing the municipality not to put anything in its place; "to do that, would make us regret the morgue."

MEDICATION OF THE EYE IN CHILDREN.—B. F. Rea suggests (*N. Y. Med. Jour.*, Aug. 17, '07) the following method for refractory cases: To pour the fluid to be instilled on the inner canthus of the closed eyelid; on being told to open the eye the fluid will run in. Rea first cocainized an eye by this method, and was thus easily able to remove a foreign body.

THE X-RAYS AS AN EPILATING AGENT.—In diseases where depilation is indicated the X-rays is very useful, such as in ringworm of the scalp, favus, some forms of folliculitis and sycosis barbæ. In many of these conditions it would not be well to use the rays in every case, but in rebellious ones the use of the rays would be of much service.

In hypertrichosis, at first, the rays were thought to be the ideal treatment, for depila-

tion can be obtained in the majority of cases readily. In a month or two, however, regrowth takes place. Some workers claim that on the appearance of the regrowth short exposures will again depilate. At the present day the rays are seldom used in this condition, as the dangers of a dermatitis, atrophy of the skin or permanent telangiectases are so great that the condition would not warrant the use of the rays. (Dr. D. K. Smith, Toronto.)

Dr. WILLIAM B. NOYES of New York City announces his removal to the Invernes, 210 West 57th street.

GIFTS TO THE N. Y. POST GRADUATE MEDICAL SCHOOL AND HOSPITAL.—Miss Margaret A. Jones of New York City died in July, 1905, and, among others, made the Post-Graduate Hospital a residuary legatee of her estate. On July 2, 1907, the executor made a payment of \$142,000 on account of this legacy.

The sum of \$5,000, which was left to the babies' wards of the Post-Graduate Hospital by Mrs. Currier as a residuary legatee, now has also reverted to the hospital. The interest of the trust fund—\$200—will hereafter be paid to this institution for the cases of the babies' wards.

ELECTRICITY IN THERAPEUTICS IN GERMANY.—According to a recent notice of the Minister of Medical Affairs in Germany, the application of electricity in treatment of disease, even in the form of electric baths, is to be regarded as pertaining to the practice of medicine.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN ENGLAND.—The English Board of Education has decided to establish a medical department to advise and to assist in regard to medical inspection of school children in England and Wales.

MILK SUPPLY OF VIENNA.—The Vienna Board of Health has made the following regulations for the control of the milk supply of the city: All coming from without the city limits must be placed in sealed vessels



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at the place of origin and the seals must be unbroken. The dairy from which such milk comes must conform to the rules laid down by the Board of Health or their product cannot be sold in Vienna. The milk from these out-of-town dairies will be examined at irregular intervals and supervision thus maintained. The milk from dairies within the city will be examined at least twice weekly and the inspection of the cattle of such dairies by the official veterinarians has been made obligatory. No milk may be sold in open vessels.

ALCOHOL IN TREATMENT OF CONSUMPTION.—According to the statistics in the report of the Henry Phipps Institute for the Study and Prevention of Tuberculosis, alcohol neither prevents nor cures tuberculosis; neither does it strongly predispose persons to the disease, as is evidenced by the preponderance of non-alcoholic patients applying for treatment.

HEALTH IN THE CANAL ZONE.—It is reported from Washington that very great improvement has taken place in the sanitary conditions in the Canal Zone, with a corresponding reduction of illness among the canal workmen. With 10,000 more men at work, there are fewer sick this year than there were last.

VESICULAR AND PAPULAR ECZEMA:

Liq. Carbonis Detergens $\bar{5}$ ss.
Glycerini $\bar{3}$ ss
Aque, q. s. ad..... $\bar{5}$ vi
This should be dabbed over the surface. If it is found unduly irritating, suspect the glycerin. Another useful lotion is:

Liniment of Lime and Black Wash,
of each $\bar{5}$ iv
Mucilage of Tragacanth, i dr., should be added.

One of the most useful lotions is the lotio calaminæ co.:

Zinci Carbonatis $\bar{5}$ iv
Zinci Oxidi $\bar{5}$ ii
Glycerini $\bar{5}$ ss
Aque Rosæ, q. s. ad..... $\bar{5}$ vi

This should be well shaken up and applied with a brush. It is useful not only as a protective to the skin, but tends also to make the skin look uniform and enhances its beauty. If

there is much itching add the liquor carbonis detergens, 30 minims.—The Hospital.

OINTMENTS IN ACUTE AND SUB-ACUTE ECZEMA:

These should never in skin diseases be applied on lint or linen; butter-muslin is the best. In erythematous eczema, cold cream is an excellent basis for soothing ointments:

Spermaceti,
Cere Albæ, aa..... $\bar{5}$ i
Ol. Amyg. Express.,
Aque Rosæ, aa..... $\bar{3}$ x

In applying ointments do not use an excessive quantity; the skin will only take up a certain amount of grease at a time.

In eczema of the axilla or the groin, or of parts where two surfaces are in close contact, the following ointment is useful:

Emplast. Plumbi,
Petrolatip. æq.

If something very soothing is required, the following is a suitable preparation.

Pulv. Camphorægr. xxx
Zinci Oxidi $\bar{3}$ ii
Glycerini $\bar{5}$ ii
Adipis Benzoinati $\bar{5}$ i
Coccigr. i
Ol. Rosæm. i

In papular eczema an ointment largely used is:

Hydrargyri Ammoniatægr. v
Liq. Carbonis Detergens $\bar{3}$ ss
Petrolati, q. s. ad..... $\bar{5}$ i

This is a very useful formula to remember, because it can be applied in many cases.

In some diseases it may be necessary to add chrysophanic acid; and it makes an excellent ointment for getting rid of infiltration if salicylic acid is added to it. In other cases it may be necessary to omit the liquor carbonis detergens.

Another good formula for papular eczema is:

Liq. Carbonis Deterg..... $\bar{5}$ i
Zinci Oxidi $\bar{5}$ i
Ung. Rosæ $\bar{5}$ i

Hydro-naphthol (2 per cent. in petrolatum) is applicable where there is much itching.—The Hospital.

VESICULAR ECZEMA:

Olive oil and lime-water in equal parts are recommended by many. Carbonate of lead and

carbonate of zinc (2 drams of each with 4 ounces of olive oil) are also advised. The ointment of ichthyol (30 per cent. in vaselin, with or within 1 dram of oxide of zinc added) is an application that does much good in many cases in vesicular eczema, especially if the patient's skin is delicate—if otherwise ichthyol may be used without the zinc oxide.—*The Hospital*.

DANDRUFF AND FALLING HAIR:

The remedy par excellence for this condition, according to Dr. Franz Witlauer (Monatsh. f. pract. Dermatol.), surpassing even the much-caunted 1 per cent. solution of salicylic acid in alcohol, is a solution of camphor in alcohol:


Camphoræ 1 part
Alcoholis 7 parts
Aquæ 2 parts

Dissolve the camphor in the alcohol and to the solution add the water. Use in an atomizer with a tube of considerable length. The end of the tube should be held against the scalp, thus moistening the hair but slightly and wasting but little of the liquid. The cures are said to follow almost invariably and soon. The camphor odor, which is unpleasant to some, soon disappears. Witlauer does not ascribe its action to the antiseptic or disinfectant action of the camphorated spirit alone, but also to the property of giving tonicity to the scalp.—*Lancet-Clinic*.

LITTLE THINGS.—It will soon surprise an erstwhile routine prescriber as soon as he begins to note the little things in diagnosis and drug action, and to relieve conditions in which he has previously failed.—*Blair's Therapeutics*.

COMING TO ITS OWN.—Medicine again is coming into its own, its renaissance is approaching, and it is both safe and easy to predict for its future equally great progress and certitude of its victories.—Henry O. Marcy, in *The Journal of Inebriety*.

INSANITY.—Speaking of the early treatment of insanity, Glasscock, in *The Journal of the Kansas Medical Society*, says, elimination by the bowels, skin and kidneys should always be brought as nearly as possible to the normal, and kept so.



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THERAPEUTIC NOTES.

SOME EXPERIENCE WITH THE HYOSCINE-MORPHINE-CACTIN ANESTHESIA.—Perhaps it will be of interest to many for me to summarize my experience in the use of H-M-C tablets for the last five months.

In Surgery

1. One hypodermic has never been quite sufficient for anesthetic purposes.

2. Two hypodermics seldom produced surgical anesthesia.

3. After one hypodermic a very small quantity of chloroform is required, but when needed the administration must be fairly continuous.

4. After two hypodermics a few inhalations of chloroform place the patient in good surgical condition and he can be kept so for a prolonged time by simply using a few drops now and again.

5. Only occasionally is there nausea after operating.

6. I have had no case of shock to treat.

7. There has been little or no post-operative pain or distress and no need of catheter in a single case.

8. Occasionally the patient will be talkative for an hour or so after operation, but ordinarily is unconscious of this.

9. Apparently the hyoscine is the disturbing factor in No. 8.

10. With one exception the patients have expressed themselves as pleased with the effects of the hypodermic, one only complained of a horrible sinking sensation.

11. Patients who have been operated upon before under ether or chloroform say that there is no comparison between the two methods; that after this the operating-table has little sense of terror to them.

12. The nurses are enthusiasts in favor of the hyoscine-morphine-cactin anesthetic, both in the operating-room and in the ward afterward, since it reduces the labor of the first twenty-four hours to a minimum.

13. The first injection may be given in the ward (mine are all private wards, no general) and the second preferably on the table or just before going going on to it. Sometimes with a nervous person we let her lie on a stretcher adjacent to the table in the operating-room.

14. Always the face is suffused; sometimes the eyes become staring for a while, but apparently there is no trouble from the condition.—*By W. T. Harrison, M. D.*

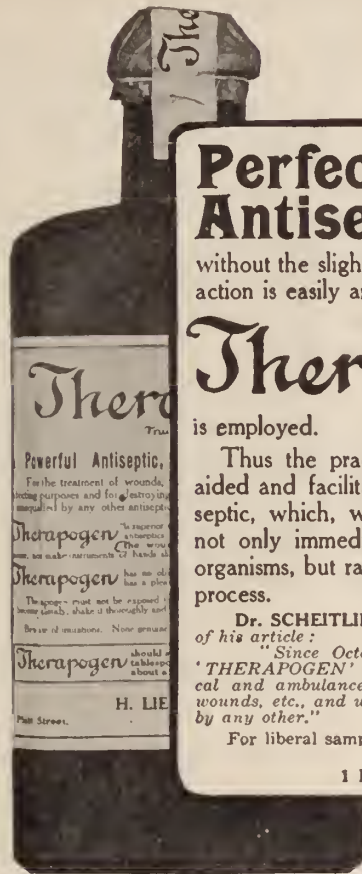
THE CURE OF A CASE OF OSTEOMALACIA.—In an article on the suprarenal glands and osteomalacia, in the *Munch. Med. Wochenschrift*, 1907, p. 278, L. M. Bossi, of Genoa, describes the almost marvelous cure of a serious case of osteomalacia by subcutaneous injections of Adrenalin. The patient was a multipara, 38 years of age, who was *enceinte* in the eighth month and had a well defined osteomalacia. After seven hypodermatic injections of Adrenalin, each of which consisted of $\frac{1}{2}$ cg. of Adrenalin of the 1-1000 solution, the patient fully recovered.

SEXUAL NEURASTHENIA.—This distressing and frequently intractable malady is logically and successfully treated by the administration of Gray's Glycerine Tonic Comp. It does not act by temporary stimulation of weakened functions, but produces permanent benefit by its influence on the whole bodily nutrition. The nervous system is restored to a normal equilibrium and morbid fears are dissipated.

BACTERIAL VACCINES.—The H. K. Mulford Company has issued a handsome working bulletin upon Bacterial Vaccines or Bacterines, with the promise of more to come as this interesting phase of therapeutics receives further development.

DEATH FROM CHLOROFORM.—*The Boston Medical and Surgical Journal* for Sept. 19 tells us that a physician of Plymouth, N. H., has just been condemned in a suit for malpractice for causing the death of a patient through the use of chloroform.

ASCLEPIAS will relieve in quite small doses pleuritic pains entirely subjective resulting from dryness of the mucous or the serous membranes. In larger doses the action is extended to the mucous membrane and finally to the skin itself.—*Blair's Therapeutics.*



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USE ALKALOIDS.—James Burke in *The Lancet-Clinic* suggests that we meet the constant changes in the pharmacoepeial strength of remedies by dropping them altogether and prescribing the alkaloids and other active principles which never change.

FLUID EXTRACTS AND TINCTURES.—Many of the therapeutic actions of small doses can not be obtained with fluid extracts and tinctures made in the usual manner, owing to the almost entire absence of certain volatile constituents.—*Blair's Therapeutics*.

INFECTION. — In *The Medical Herald*, James Burke has an interesting paper upon infection, in the course of which he says: "By the proper correction of the intestinal toxins we cut short the supply from which most of the systemic leucomains derive their source."

RECIPROCITY.—*The Texas Courier-Record of Medicine* says that a national medical license for practice is unconstitutional; the only remedy for the present condition of

affairs lying in interstate reciprocity. We believe our contemporary is strictly correct in these conclusions.

ETHICS AND "A SQUARE MEAL."—It is useless to talk about raising the standard to a man who cannot go to sleep because of a hungry stomach, and no essay on ethics or higher education can be used as a substitute for a square meal.—William Bodeman, at the N. A. R. D. meeting.

GOOD FROM HAHNEMANN.—Rejecting personally the theories of Hahnemann, it cannot be denied that his followers have discovered many facts with reference to the action of remedies individually, and have introduced into medicine very many valuable drugs.—*Blair's Therapeutics*.

DRUGS AND POISONS.—In large doses most active drugs may be classed as poisons to a certain degree, and most poisons act upon a narrow area in minute doses, but extend this area in large doses.—*Blair's Therapeutics*.

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THAT a loss of phosphorus and its compounds from the bodily economy is a constant detail of malnutrition or failing metabolism is too well known to require argument. The fact, however, serves to indicate the important place which phosphorus necessarily fills in the therapy of these conditions. The great need has been to obtain a phosphorus compound in appropriate and readily assimilable form. For this purpose PHYTIN has been evolved and this remarkable product represents a higher amount of phosphorus in organic combination than any other known preparation. It promptly increases metabolistic activity and promotes nutrition. The nervous system responds at once to its restorative action and all diseases characterized by a lowered vitality, such as early tuberculosis, functional nervous diseases, anaemia, etc., show rapid improvement. Absolutely free from all deleterious or objectionable action. For infants a neutral soluble preparation of PHYTIN and milk sugar called FORTOSSAN is supplied. Specially recommended in cases of artificial feeding, retarded development, slow growth, rachitis, scrofula, and convalescence from all acute diseases.

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¶ Its production satisfied the demand of the profession for an elegant pharmaceutical laxative of agreeable quality and high standard, and it is, therefore, a scientific accomplishment of value, as our method ensures that perfect purity and uniformity of product required by the careful physician. It is a laxative which physicians may sanction for family use because its constituents are known to the profession and the remedy itself proven to be prompt and reliable in its action, acceptable to the taste and never followed by the slightest debilitation.

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- 3d. Renders fetid, ammoniacal and turbid urine clear, inodorous and unirritating.
- 4th. Causes urates, phosphates and oxalates to be held in solution by the modified urine, and deposits to be prevented.
- 5th. Under its influence the genito-urinary tract is put in good condition for operating.
- 6th. In Gouty and Rheumatic subjects excretion is facilitated and the symptoms ameliorated.
- 7th. In Gonorrhea, acute or chronic, Cystogen serves to restrict the area of infection and prevent reinfection. Cystogen is an important adjuvant to local measures.

Dose—5 grains, three or four times daily, largely diluted with water.

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